

MINISTRY OF HEALTH

On the State of  
THE PUBLIC HEALTH

THE ANNUAL REPORT OF  
THE CHIEF MEDICAL OFFICER OF  
THE MINISTRY OF HEALTH  
FOR THE YEAR 1962



LONDON  
HER MAJESTY'S STATIONERY OFFICE  
1963



# CONTENTS

|                                                       | <i>Page</i> |
|-------------------------------------------------------|-------------|
| INTRODUCTION ... ..                                   | 1           |
| I. VITAL STATISTICS ... ..                            | 19          |
| Population... ..                                      | 19          |
| Births and Deaths ... ..                              | 22          |
| Death Rates in Different Age Groups ... ..            | 22          |
| Standardized Mortality Ratio ... ..                   | 23          |
| Causes of Death ... ..                                | 24          |
| Maternal Mortality ... ..                             | 27          |
| Stillbirths ... ..                                    | 27          |
| Infant Mortality ... ..                               | 28          |
| Mortality 1931 to 1962 ... ..                         | 30          |
| Notifiable Infectious Diseases ... ..                 | 31          |
| International Comparisons ... ..                      | 31          |
| Morbidity in Older Men... ..                          | 32          |
| II. GENERAL EPIDEMIOLOGY ... ..                       | 34          |
| Measles ... ..                                        | 34          |
| Scarlet Fever ... ..                                  | 34          |
| Meningococcal Infection ... ..                        | 35          |
| Enteric Fevers ... ..                                 | 36          |
| Leprosy ... ..                                        | 37          |
| Poliomyelitis ... ..                                  | 37          |
| Tetanus ... ..                                        | 40          |
| Whooping Cough... ..                                  | 41          |
| Malaria ... ..                                        | 41          |
| Anthrax ... ..                                        | 42          |
| Smallpox ... ..                                       | 42          |
| Vaccination ... ..                                    | 44          |
| Complications of Vaccination ... ..                   | 46          |
| Dysentery ... ..                                      | 52          |
| Acute Encephalitis ... ..                             | 54          |
| Influenza ... ..                                      | 54          |
| Diphtheria... ..                                      | 55          |
| Rubella ... ..                                        | 56          |
| Food Poisoning ... ..                                 | 57          |
| III. INTERNATIONAL HEALTH ... ..                      | 60          |
| Airports ... ..                                       | 61          |
| Sea Ports ... ..                                      | 62          |
| Medical Examinations of Aliens ... ..                 | 63          |
| Medical Examination of Commonwealth Immigrants ... .. | 63          |
| IV. VENEREAL DISEASES ... ..                          | 64          |
| Syphilis ... ..                                       | 64          |
| Gonorrhoea ... ..                                     | 67          |
| Other Venereal Diseases ... ..                        | 69          |
| The Present Position ... ..                           | 69          |
| V. TUBERCULOSIS ... ..                                | 71          |
| Notification ... ..                                   | 74          |
| Mortality ... ..                                      | 75          |
| Tuberculosis—Local Authority Areas ... ..             | 75          |
| B.C.G. Vaccinations ... ..                            | 75          |
| Chest Clinics ... ..                                  | 76          |
| Chest Radiology ... ..                                | 76          |
| Central Register of Drug Resistant Cases ... ..       | 77          |

|                                                              | <i>Page</i> |
|--------------------------------------------------------------|-------------|
| VI. MATERNAL AND CHILD HEALTH ... ..                         | 78          |
| The Rising Birth Rate and its Effect upon Maternity Services | 79          |
| Home and Institutional Confinement ... ..                    | 81          |
| Congenital Defects associated with Thalidomide ... ..        | 82          |
| Phenylketonuria ... ..                                       | 89          |
| Premature Births ... ..                                      | 91          |
| Acute Rheumatism ... ..                                      | 93          |
| VII. CHRONIC DISEASES... ..                                  | 95          |
| Cancer ... ..                                                | 95          |
| Chronic Bronchitis ... ..                                    | 101         |
| Rheumatic Diseases ... ..                                    | 107         |
| VIII. ENVIRONMENTAL HYGIENE ... ..                           | 108         |
| Clean Air ... ..                                             | 108         |
| Soft Ice Cream Machines ... ..                               | 111         |
| Transportation of Food ... ..                                | 112         |
| Pasteurization of Bulked Liquid Whole Egg ... ..             | 113         |
| Nutrition ... ..                                             | 114         |
| IX. DENTAL HEALTH SERVICES ... ..                            | 116         |
| Dental Manpower ... ..                                       | 116         |
| Report on Dentistry ... ..                                   | 116         |
| Maternal and Child Welfare ... ..                            | 116         |
| Recruitment of Staff ... ..                                  | 118         |
| Dental Treatment for Children of School Age ... ..           | 118         |
| Research ... ..                                              | 119         |
| Fluoridation ... ..                                          | 120         |
| Hospital Dental Services ... ..                              | 123         |
| Orthodontics ... ..                                          | 123         |
| Number of Dentists in General Dental Services ... ..         | 124         |
| References by Dental Estimates Board... ..                   | 125         |
| X. NURSING ... ..                                            | 126         |
| Nursing Studies ... ..                                       | 127         |
| Nurse Training ... ..                                        | 128         |
| Midwifery ... ..                                             | 129         |
| Psychiatric Nursing ... ..                                   | 130         |
| Hospital Planning ... ..                                     | 131         |
| Health Visiting ... ..                                       | 131         |
| Home Nursing ... ..                                          | 133         |
| Child Health ... ..                                          | 133         |
| Health Education ... ..                                      | 134         |
| Home Health Service ... ..                                   | 134         |
| XI. MENTAL HEALTH ... ..                                     | 135         |
| Components of a Community Mental Health Service ... ..       | 135         |
| Organizational Changes Required in Existing Mental Hospitals | 138         |
| XII. SOCIAL WELFARE ... ..                                   | 143         |
| The Mental Health Services ... ..                            | 143         |
| The Physically Handicapped ... ..                            | 145         |
| The Elderly ... ..                                           | 147         |
| Staffing of Residential Homes ... ..                         | 149         |
| XIII. HEALTH IN WALES... ..                                  | 150         |
| Maternity and Child Welfare ... ..                           | 150         |
| Dental Health Services ... ..                                | 152         |
| Mental Health Services ... ..                                | 152         |
| Home Help Services ... ..                                    | 153         |
| Infectious Diseases ... ..                                   | 155         |
| Cancer ... ..                                                | 157         |

|                                                                                         | <i>Page</i> |
|-----------------------------------------------------------------------------------------|-------------|
| XIV. THE ARTIFICIAL LIMB SERVICE ... ..                                                 | 160         |
| Lower Limb Amputations ... ..                                                           | 163         |
| Upper Limb Amputations ... ..                                                           | 164         |
| Rehabilitation ... ..                                                                   | 166         |
| Congenital Deformities of the Extremities ... ..                                        | 166         |
| Powered Arm Prostheses ... ..                                                           | 167         |
| The Prosthetic Management of Congenital Deformities of the<br>Lower Limbs... ..         | 168         |
| Courses ... ..                                                                          | 170         |
| Research ... ..                                                                         | 170         |
| XV. A. TRENDS IN HOSPITAL DESIGN AND EQUIPMENT                                          | 174         |
| Operating Theatre Suites ... ..                                                         | 174         |
| Intensive Therapy Units ... ..                                                          | 176         |
| Ultrasonics in Medicine ... ..                                                          | 178         |
| B. THE DISTRICT HOSPITAL CONCEPT AND ITS EFFECT<br>ON MEDICAL WORK ... ..               | 181         |
| Accident Services ... ..                                                                | 182         |
| Paediatric Department ... ..                                                            | 183         |
| Geriatric Services ... ..                                                               | 184         |
| Psychiatric Department ... ..                                                           | 185         |
| Maternity Department ... ..                                                             | 185         |
| Outpatients Departments ... ..                                                          | 186         |
| General ... ..                                                                          | 187         |
| XVI. POINTS FROM GENERAL PRACTICE ... ..                                                | 189         |
| XVII. MATERIA MEDICA AND TOXICOLOGY ... ..                                              | 192         |
| Quality Control of Therapeutic Agents ... ..                                            | 192         |
| Therapeutic Efficacy ... ..                                                             | 194         |
| Applied Toxicology ... ..                                                               | 195         |
| XVIII. SPECIAL SUBJECTS ... ..                                                          | 199         |
| i. Paediatric Surgery ... ..                                                            | 199         |
| ii. Some Medical Aspects of Waiting Lists ... ..                                        | 203         |
| iii. Post-Graduate Medical Education ... ..                                             | 208         |
| APPENDICES                                                                              |             |
| A. Tables of Vital Statistics: England and Wales ... ..                                 | 212         |
| B. Tables relating to Tuberculosis ... ..                                               | 224         |
| C. Tables relating to Venereal Disease ... ..                                           | 233         |
| D. Tables relating to Wales ... ..                                                      | 236         |
| E. Miners' Rehabilitation Service ... ..                                                | 239         |
| F. United Kingdom Membership of W.H.O. Expert Advisory<br>Panels, December, 1962 ... .. | 242         |
| G. Staff of Medical Department ... ..                                                   | 244         |

# REPORT OF THE CHIEF MEDICAL OFFICER ON THE STATE OF THE PUBLIC HEALTH

FOR THE YEAR ENDED 31st DECEMBER, 1962

## INTRODUCTION

To the Rt. Hon. J. Enoch Powell, M.B.E., M.P.  
Minister of Health.

Sir,

I have the honour to submit my report on the State of the Public Health in England and Wales during 1962. This year it ceases to be published as Part II of the Report of the Ministry of Health. It becomes again a separate document, as it was until 1946, and takes on a new appearance though it continues to fulfil its established purpose of reviewing the health record of the country and commenting upon some medical developments of special interest noted during the year.

Two problems of an unusual kind in preventive medicine presented themselves during 1962. Modern air travel and the ease with which people are able to move from one country to another have altered the significance to us of epidemics elsewhere and created a fresh set of problems for those working on environmental hygiene and the control of communicable disease. This was demonstrated during the year by the six separate occasions when smallpox was introduced into England and Wales. The function of the Ministry has become more rather than less important in preventing the spread of some diseases. At the other extreme preventive medicine is increasingly concerned with the study of the ways by which secondary disability resulting from disease, whether mental or physical, can be reduced to a minimum. These points are illustrated in the body of this Report by the accounts of the progress made both in treating babies with congenital deformities of limbs, and in developing community mental health services.

During the year the plan for development of the hospital services over the next ten to fifteen years was published and it has been followed since the end of the year by the companion plan for the health and welfare services of local authorities. These two plans foreshadow the orderly development of comprehensive health services and a better use of resources which should lead to steady improvement in the state of the public health. Measurement of that improvement may be difficult but it should be an objective of both the central department and of the universities to study the evidence that we are in fact achieving what we set out to do.

## VITAL STATISTICS

In mid-1962 the estimated population of England and Wales was 46,669,000 which represented an increase of more than half a million persons since mid-1961. This is the highest annual increase ever recorded and it can be attributed both to a large number of births and to migration from the

Commonwealth and other parts of the United Kingdom. The increase of births over deaths was 281,000 and the net balance of immigration over emigration from mid-1961 to mid-1962 was estimated to be 225,000. The latter figure was the result of an unusual influx of immigrants during the period when legislation was impending.

The age distribution of the population has changed in unexpected ways in recent years. Projections based on current trends in the early 1950s have been falsified by changes in custom which could not be foreseen then. Women are marrying at an earlier age and bearing children earlier. Revised projections assume a slight increase in family size and so, by 1975, a continuing increase in the proportion of the population aged up to 14. This increase means that the proportion of people aged over 65 grows less rapidly than expected but their number at 5.6 million continues to grow. The age groups of the population—children and the aged—who are the greatest users of health services therefore both increase in absolute numbers, while the working age groups are only now being joined by the large numbers born in 1946-47. In 1951 33.2 per cent. were aged under 15 or over 65 and in 1962, 34.6 per cent. If the main working age group is taken as aged 20 to 64, it contained slightly less than three-fifths of the population in 1962. The stillbirth rate at 18.1 per thousand was the lowest ever recorded in England and Wales; the mortality rate for infants under the age of one year rose from 21.4 per thousand live births in 1961 to 21.7 in 1962, but the deaths of infants under the age of four weeks and the neonatal mortality rate declined. This small fluctuation was therefore due to a slight increase at ages one month to one year and in males. In recent years there has been a striking reduction in the maternal mortality rate, in the last ten years by approximately 50 per cent.; but there was a slight increase in 1962, the sort of random fluctuation to be expected in so low a figure.

During 1962 there was a decline, compared with 1961, of 7 per cent. in the mortality from tuberculosis and there were decreases in the number of deaths from diphtheria, whooping cough, syphilis, poliomyelitis, dysentery and influenza. The deaths from cancer during 1962 reached 100,000 for the first time. Twenty-three per cent. of the deaths from cancer were due to cancer of the lung and bronchus, double the number recorded from this cause 13 years ago, the heaviest mortality being among persons between 60 and 65 years of age. From 1961 to 1962 there were also small increases in the number of persons dying from cancer of the breast (9,367 to 9,430) and from leukaemia (2,645 to 2,707), but the standardized Mortality Ratio of cancer other than lung or leukaemia was unchanged.

In the younger age groups, accidental death causes over one half of all deaths in males between the ages of 15 to 25. In order of numerical importance the main causes of accidental death are motor vehicle accidents, falls, drowning and burns and scalds. A welcome check to the rising number of fatal traffic accidents occurred in 1962.

Cardiovascular disease and diseases of the respiratory system are still among the chief causes of death. Mortality rates for both are influenced by weather and by epidemics of influenza and other infections, but the number of people dying of bronchitis remains consistently high and in

1962 was 33,293. These are, in the main, killing diseases of older people, but an interesting comparison of sickness absence rates at later ages, particularly for longer spells, is made. The proportion of older men incapacitated for three months or more between the ages of 60-64 has increased appreciably in this age group but not at ages 55-59. Bronchitis and arteriosclerotic heart disease provide 40 per cent. of the increase, but these statistics of certified unfitness for work are unreliable measures of morbidity and could be affected by other than medical factors.

Some interesting international comparisons are made, showing that England and Wales compare reasonably well with other countries in infant and maternal mortality rates, still-birth rates and particularly so in death rates in childhood, adolescence and early adult life. On the whole the picture presented by the year's vital statistics is favourable, but as always the attainment of figures hardly thought attainable twenty or even ten years ago merely serves to show that still better results can certainly be achieved.

#### COMMUNICABLE DISEASE

During the first five months of the year 62 indigenous cases of smallpox arose in England and Wales. The disease was introduced by five travellers from Pakistan who, having arrived separately in this country during December, 1961 and January, 1962, later developed smallpox from which two of them died. This gave a total of 67 cases and in all but three of them, who had died undiagnosed, the diagnosis was virologically confirmed. The Public Health Laboratory Service's network of virological centres has become an essential part of smallpox control. Medical Officers of Health also called upon members of the Panel of Experts on Smallpox to help in the diagnosis of suspected cases; in England alone they examined a further 370 patients who were subsequently proved not to be suffering from smallpox. The help of this small group of doctors with experience of smallpox again proved of great value and clinical diagnosis remains the key to that immediate action upon which control depends, even though the speed and reliability of laboratory techniques has added a new degree of certainty to control measures. In spite of the rarity of this disease, which only a minority of doctors have seen at all, it is noteworthy that the nature of the infection was suspected by the doctor who was the first to see the patient and confirmation was sought in each one of the imported cases that presented with a focal rash. The cases that were missed occurred in exceptional circumstances or in clinically undetectable form. Altogether the record of all branches of the health service was highly creditable, but special credit should be accorded to the Medical Officers of Health and their staffs for their admirably effective control work.

The series was unusual in that 40 of the confirmed cases were either hospital patients or members of hospital staffs. When the vaccinal state of all patients was related to the severity of the attack and the mortality rate, the value of protection by vaccination for those who might at any time come into contact with smallpox was clearly seen. It is equally clear that while some are specially exposed, none is free from risk when rapid air transport links this country with endemic areas. The compli-

cations of vaccination are reviewed in some detail and shown to be very infrequent. A full report has been published separately.

The number of cases of poliomyelitis notified and later confirmed during 1962 was 271 of which 59 were non-paralytic. This figure is the lowest except for 1918 since notification began in 1912. However, the incidence this year was lower even than in 1918, being 0.6 per 100,000 of the population. There was one moderate local outbreak involving cases in Monmouthshire during June and the first half of July which is discussed in Chapter XIII, but the feature of the year—as in other countries where vaccine has been used effectively—was the virtual elimination of the seasonal increase in summer and autumn. Thus, after a year of slightly increased prevalence in 1961, the experience of 1962 is the most favourable yet recorded.

On 1st February oral Sabin type vaccine was made available for the routine immunisation of those in the priority groups and, in order to allay any misgivings, arrangements were made to investigate any patient showing neurological signs during the month following immunisation. A mass vaccination campaign was instituted in Monmouthshire in the face of the local prevalence in June and 72,000 people in this area were given a single dose of the oral vaccine in the last week of the month. By the end of the year 0.9 million persons in England and Wales had received three doses of oral vaccine and another 150,000 or so had received one or two doses. In addition, 2.1 million had received reinforcement of Salk vaccine by oral Sabin vaccine.

The long campaign for vaccination appears to have brought the country within sight of elimination of poliomyelitis and the attenuated vaccine has become the agent of choice. Yet a final decision on the future of inactivated vaccine may not be made for some years. There are still advocates of a general distribution of live vaccine in a short period to eliminate the wild virus if possible. The further experience of New Zealand where, following a substantial recurrence of poliomyelitis in a community well immunised with inactivated vaccine, attenuated vaccine was given to four-fifths of the population and no case occurred in a full year, will be followed with interest.

The Joint Committee on Poliomyelitis Vaccines which, under the Chairmanship of Lord Cohen of Birkenhead, has been a constant source of support and wise guidance through a difficult period, was disbanded at the end of the year. The Committee's final contribution was a careful evaluation of the evidence concerning illness in the period following the administration of attenuated vaccine and the conclusion that attenuated vaccine had not been shown to produce clinical illness. This had an invaluable steadying influence on medical opinion. A new Committee on Vaccination and Immunisation takes its place. The timing of immunisation and vaccination for various diseases has been brought into orderly sequence on the advice of the Standing Medical Advisory Committee, but it seems likely that future developments with combined vaccines will lead to further revision, especially if a reliable measles component becomes available. Work on measles vaccines has made progress, but seems at the time of writing to be some way from the production of a vaccine suitable for general use in British conditions.

The risk of holiday-makers contracting typhoid fever abroad and the desirability of protecting intending travellers with a good vaccine was again emphasized. Holiday-makers in Teneriffe and Spain were involved in 1962.

Whooping cough has become a much smaller hazard in childhood but it is still a menace to children in the first year of life. The use of vaccines to protect older children in the household has value as protection not only of the child but also of the very young brother or sister. A reinforcing dose for the older child before a new baby is born to the family is worth consideration.

Meningococcal infection is a more likely cause of death in the pre-school child than poliomyelitis and it is regrettable that methods of controlling this infection have not been found, although treatment is effective.

Once more the prevalence of dysentery is a sad commentary on the standards of hygiene and the record of 1962 was worse than 1961 though better than earlier years.

Influenza due to the B strain of virus was prevalent early in the year, but, as usual, was not a widespread cause of severe illness.

A single laboratory infection with *Pasteurella pestis* caused a death from pneumonic plague during the year. This most unusual occurrence aroused great public interest but there was no subsequent spread. The episode emphasizes the necessity for great care in the handling of pathogenic organisms in the laboratory.

The incidence of food poisoning declined in 1962. Nine fatal cases were reported, three of which were associated with an outbreak in the Borough and Rural districts of Chesterfield which was responsible for seventy cases and symptomless excretors. The original source of this infection was believed to be a farm on which two employees and several calves were found to be carriers of *S. typhimurium* U72. There were two other significant outbreaks during the year. One involved people who ate a ham contaminated by *S. bredeney* at a London banquet and the other, fifty-four of the pupils and staff of a private boarding school who became ill after eating canned corned beef contaminated with *S. onderstepoort*. The first two of these outbreaks illustrate once more the great value of a co-ordinated bacteriological service. The Public Health Laboratory Service was able to provide both the technical evidence of typing and the link between different local authority areas, without which the explanation of these two incidents might well have been incomplete.

#### INTERNATIONAL HEALTH

All five of the Pakistani immigrants who entered this country between 16th December, 1961 and 11th January, 1962 and later developed smallpox had valid international certificates of recent revaccination. They were amongst the large numbers of people travelling at this time from Karachi, a city with a high prevalence of smallpox. In Chapter III the special steps taken to assess the success of vaccination in all travellers who had been in Karachi within fourteen days prior to arrival are described. It was found that the precautions taken by the Pakistan authorities from 15th

January to 9th March produced successful vaccination in over 98 per cent. and that half the remainder were immune. This information suggested that confirmation of the result of revaccination should be obtainable in the great majority of persons and that the International Certificate of Vaccination could be altered so as to record the result. This suggestion was put to the World Health Organisation whose Committee on International Quarantine did not consider an amendment feasible. The matter was referred to the 16th World Health Assembly.

The Commonwealth Immigrants Act came into force on 1st July, 1962. It is similar in many respects to the Aliens Order 1953 and enables immigration officers to prevent Commonwealth citizens in poor health from entering Britain. The Commonwealth Immigrants Act, unlike the Aliens Order, does not require the wives and children of Commonwealth immigrants to submit to a medical clearance. Medical examinations were conducted on 31,774 aliens and 6,823 Commonwealth citizens coming into the country, and permission to land was refused on health grounds to 105 and 12 respectively.

#### VENEREAL DISEASES

In 1962 there were 1,224 cases of early syphilis reported from venereal disease clinics compared with 1,199 in 1961. An increase of 2.1 per cent. in the number of cases of infectious syphilis is small, but the number remains more than 70 per cent. above the low level of 1958. On the other hand, the decrease from 37,107 to 35,438 in the number of cases of gonorrhoea is more satisfactory and reverses a trend which has persisted since 1954. The figures for the last quarter were however less favourable than for the rest of the year. The part played by immigrants in the present high incidence of gonorrhoea is discussed in Chapter IV; they still accounted for more than half the new cases of gonorrhoea in men in 1961. The reduction in 1962 appears to have occurred in the home population. On the other hand, more than four-fifths of new cases in women in 1961 were in the home population and more than a quarter were in girls aged 15 to 19. Chapter IV suggests one point which could help in controlling spread of infection. Gonorrhoea produces obvious symptoms and signs in most affected men but does not in many infected women. Of 225 men who attended one clinic without symptoms after known exposure, none had gonorrhoea, but of 198 symptom-free women, 124 had gonorrhoea and 23 had other genital infections.

The fact that there are promiscuous young women in the community has to be faced and, since they are there and are the main reservoir of unrecognized gonococcal infection, everything should be done to encourage them to attend clinics for examination. Venereal disease clinics are or should be no different from other medical centres in their concern for the medical care of patients. If men or women of whatever age choose to risk venereal infection, both for their own sakes and in the interests of innocent and uninfected contacts—possibly spouses—they should use the facilities the clinics provide. The incidence among girls aged 15 to 19 is approximately the same as among boys, whereas at all ages four times as many men as women attend the clinics. There can be little doubt that more girls should have attended. It is hoped that the memorandum prepared by

the Standing Medical Advisory Committee which was sent to general practitioners in July, 1962 will help to stimulate their interest in venereal disease and that with wider understanding of the controllability of this infection more individuals will seek advice from their own doctor.

#### TUBERCULOSIS

Chapter V reviews the changes which have taken place in the incidence, as indicated by notification, of tuberculosis in various age groups in the last ten years. A total fall of 5.7 per cent. in the number of new notifications of all forms of tuberculosis in both sexes was recorded in 1962. There were 12,966 cases in men and 7,553 in women. In 1962 the highest rates in men were for the over 45 age group, though for women the highest incidence remained in the 15 to 24 and 25 to 34 age groups. However, in both sexes there has been a steep fall in the prevalence of tuberculosis in the 15 to 34 age groups.

The use of specific drugs for the treatment of tuberculosis has been the prime factor in controlling its spread in the community by rendering patients non-infective quickly—an effect no less important than that on mortality. If the Standardized Mortality Ratios, taking the figures for 1950–52 as 100, are calculated the figure for 1962 is shown to be 22. Such progress gives hope that tuberculosis may ultimately be completely eradicated, but it does not mean that effort can be relaxed yet. During the year 63,000 tuberculosis contacts and 432,433 school children with negative skin tests received B.C.G. vaccination. As in previous years nurses and medical and dental students were also offered vaccination; although the prevention of natural infection in childhood and young adult life is the most important control measure, the large amount of vaccination at school age in the last eight years must by now play an important part.

The Chest Clinics now record the number of people attending for treatment or supervision of a tuberculous condition in addition to the cases of tuberculosis notified to the medical officer of health. The actual figure was 27,000 compared with a total of 20,519 notified during the year. No doubt, some patients with tuberculosis may remain undetected in the community, but the frequency of such cases is probably diminishing as is shown by the rapidly falling number of cases first recorded post mortem. Radiology helps by bringing to light a number of cases of tuberculosis requiring treatment or close clinic supervision. In 1961 the rate was 1.4 per thousand examined by Mass Radiography alone. In 1961 Mass Radiography Units also discovered 2,295 malignant neoplasms in males and 382 in females.

A central register recording details of cases showing significant drug resistance to standard anti-tuberculosis drugs has been set up and it is hoped that information acquired by this means will eventually indicate changes in the frequency and type of drug resistance.

#### MATERNAL AND CHILD HEALTH

The maternity mortality rate had been falling steadily since 1953 and it was therefore disappointing that that trend was interrupted by a small increase in 1962. No particular cause was responsible for this and such random fluctuations in figures as small as the present rates are to be expected. Nevertheless, this is a figure that is still reducible by best current methods and it

is to be hoped that the improvement will be resumed in 1963. The rate of 0.35 is the second lowest ever recorded and compares with 0.34 in 1961.

The priorities for admission to hospital for confinement have long included women having their fifth or more child and those over 35 years of age. Yet the analysis of births by age and parity of the mother given in Chapter VI shows that only some 55 per cent. of grand multiparae were delivered in hospital in 1961. This is better than the figure of 52 per cent. in 1960, but is far short of what is desired. Only 7.8 per cent. of births in 1958-60 were in this group, but among them were 22.5 per cent. of the maternal deaths studied in the confidential enquiries for those years. If these women face three times the average risk they must clearly be persuaded to have their confinements in hospital where those risks are most easily controlled.

The trend in the birth rate and the revised projections for the future have caused serious difficulties in the maternity services and necessitated revision of plans for the future. The balance between home and hospital as the place chosen for confinement has been uneasily stable for some years with rather more than a third of births at home. The recent increase in the birth rate has probably concealed a trend towards hospital births because it has meant that the opportunities for admission were fully used without increasing the proportion admitted. If all who wished were admitted, this proportion would be greater still. Early planned discharge of maternity cases from hospital is an increasingly common practice and more than a sixth of women now leave hospital on or before the seventh day after delivery. Yet no controlled study of the results for mother or baby has been made—mainly because it is so difficult to design. Reliable information on this point would be of great help in planning.

A special enquiry has yielded information on 237 deformed babies, whose mothers had certainly taken thalidomide during pregnancy, born in England and Wales from 1959-62 and a further 112 whose mothers had probably had the drug. Of the 237 cases 200 had limb deformities.

Most babies with thalidomide induced deformities are of normal intelligence. Experience has shown that if a full assessment of the degree of handicap is made at an early age arrangements for treatment can be planned and co-ordinated so as to allow the child to keep up with the normal timetable of developmental progress and be ready to attend school at the age of 5 years. Residential accommodation for mother and child is available for those cases where periodic or prolonged treatment and training in hospital is necessary and special centres for fitting powered upper-limb prostheses have been developed (see Chapter XIV). It seems, therefore, that there is every reason to believe that with encouragement and understanding the majority of these children will profit from continuing training and education and eventually be able to take up suitable employment.

The findings of the first Phenylketonuria Conference arranged by the Medical Research Council have now been published. One of the recommendations of this conference was that routine screening tests aimed at detecting cases of phenylketonuria should be undertaken in children aged 4-6 weeks. A total of 864,599 tests has been recorded by local health authorities and 39 cases of phenylketonuria detected by this means. This figure cannot be considered as a true indication of the total incidence of the

disease in the population as a whole because of the 145 local health authorities in England and Wales the figure of 864,599 tests only represents the number of tests carried out by the 124 authorities who made complete returns.

Since 1959 acute rheumatism has been a notifiable disease in nine county boroughs and in Cornwall, Lancashire and Lincoln. In 1962 there were 0.7 cases of acute rheumatism notified in the twelve areas combined per 10,000 of child population representing a fall from 0.9 per 10,000 in 1961. There have been considerable falls in the number of cases notified in Lancashire and Cardiff where the rate per 10,000 children in 1962 was 0.51 and 0.61 respectively compared with 1.04 and 2.39 in 1959.

#### CHRONIC DISEASES

In 1962 the total number of deaths from cancer reached 100,000 for the first time and 23,779 of these were ascribed to cancer of the lung. In March the Royal College of Physicians issued a report of great importance on Smoking and Health. This reviewed the evidence dispassionately and, with scrupulous fairness, stated conclusions which were wholly damning against cigarette smoking. There is surely no longer need to argue whether, but only how, the habit should be avoided or broken. The risk to the individual can be estimated in quantitative terms which should deter all but the addict who decides to accept that risk for himself. But the individual adult needs also to consider the damage he may cause to others—especially his own children—if he sets them the example of smoking cigarettes. If cigarette smoking could be abolished by common consent there would follow a progressive and large reduction in lung cancer deaths, in the prevalence of chronic bronchitis and, probably, various other diseases also; even a change to pipe or cigar smoking would produce improvement. Published comment on the financial results of a year's trading in tobacco which was to the effect that almost complete recovery of sales had occurred after the "cancer scare", reflects utter lack of understanding. The deaths of over 23,000 people in one year are not a "scare" but an accomplished tragedy. There is no easy way of achieving abstinence in this matter nor any panacea that medicine can provide; each cigarette smoker has to face and prevail over his own indulgence.

Smoking is an important aetiological factor in causing morbidity and mortality from other diseases than cancer of the lung. Chronic bronchitis in England and Wales in 1961 accounted for 26,668 deaths. In addition, for every 1,000 certificates on which bronchitis was stated to have been the underlying cause of death there were 737 in which it was said to have played a part. Chronic bronchitis affects seventeen per cent. of men and eight per cent. of women between the ages of 40 and 64. It is more prevalent in urban than in rural areas, is estimated to cause the loss of some 29 million working days each year and is more common in the lower socio-economic classes. There may be an element of constitutional susceptibility to chronic respiratory disease in some individuals but there are three most important factors which are believed to give rise to its development. These are atmospheric pollution, cigarette smoking and infection. The influence of these factors was emphatically underlined in the Scottish Health Service Council Report on bronchitis (produced in 1962 and published in March, 1963).

is to be hoped that the improvement will be resumed in 1963. The rate of 0.35 is the second lowest ever recorded and compares with 0.34 in 1961.

The priorities for admission to hospital for confinement have long included women having their fifth or more child and those over 35 years of age. Yet the analysis of births by age and parity of the mother given in Chapter VI shows that only some 55 per cent. of grand multiparae were delivered in hospital in 1961. This is better than the figure of 52 per cent. in 1960, but is far short of what is desired. Only 7.8 per cent. of births in 1958-60 were in this group, but among them were 22.5 per cent. of the maternal deaths studied in the confidential enquiries for those years. If these women face three times the average risk they must clearly be persuaded to have their confinements in hospital where those risks are most easily controlled.

The trend in the birth rate and the revised projections for the future have caused serious difficulties in the maternity services and necessitated revision of plans for the future. The balance between home and hospital as the place chosen for confinement has been uneasily stable for some years with rather more than a third of births at home. The recent increase in the birth rate has probably concealed a trend towards hospital births because it has meant that the opportunities for admission were fully used without increasing the proportion admitted. If all who wished were admitted, this proportion would be greater still. Early planned discharge of maternity cases from hospital is an increasingly common practice and more than a sixth of women now leave hospital on or before the seventh day after delivery. Yet no controlled study of the results for mother or baby has been made—mainly because it is so difficult to design. Reliable information on this point would be of great help in planning.

A special enquiry has yielded information on 237 deformed babies, whose mothers had certainly taken thalidomide during pregnancy, born in England and Wales from 1959-62 and a further 112 whose mothers had probably had the drug. Of the 237 cases 200 had limb deformities.

Most babies with thalidomide induced deformities are of normal intelligence. Experience has shown that if a full assessment of the degree of handicap is made at an early age arrangements for treatment can be planned and co-ordinated so as to allow the child to keep up with the normal timetable of developmental progress and be ready to attend school at the age of 5 years. Residential accommodation for mother and child is available for those cases where periodic or prolonged treatment and training in hospital is necessary and special centres for fitting powered upper-limb prostheses have been developed (see Chapter XIV). It seems, therefore, that there is every reason to believe that with encouragement and understanding the majority of these children will profit from continuing training and education and eventually be able to take up suitable employment.

The findings of the first Phenylketonuria Conference arranged by the Medical Research Council have now been published. One of the recommendations of this conference was that routine screening tests aimed at detecting cases of phenylketonuria should be undertaken in children aged 4-6 weeks. A total of 864,599 tests has been recorded by local health authorities and 39 cases of phenylketonuria detected by this means. This figure cannot be considered as a true indication of the total incidence of the

disease in the population as a whole because of the 145 local health authorities in England and Wales the figure of 864,599 tests only represents the number of tests carried out by the 124 authorities who made complete returns.

Since 1959 acute rheumatism has been a notifiable disease in nine county boroughs and in Cornwall, Lancashire and Lincoln. In 1962 there were 0.7 cases of acute rheumatism notified in the twelve areas combined per 10,000 of child population representing a fall from 0.9 per 10,000 in 1961. There have been considerable falls in the number of cases notified in Lancashire and Cardiff where the rate per 10,000 children in 1962 was 0.51 and 0.61 respectively compared with 1.04 and 2.39 in 1959.

#### CHRONIC DISEASES

In 1962 the total number of deaths from cancer reached 100,000 for the first time and 23,779 of these were ascribed to cancer of the lung. In March the Royal College of Physicians issued a report of great importance on Smoking and Health. This reviewed the evidence dispassionately and, with scrupulous fairness, stated conclusions which were wholly damning against cigarette smoking. There is surely no longer need to argue whether, but only how, the habit should be avoided or broken. The risk to the individual can be estimated in quantitative terms which should deter all but the addict who decides to accept that risk for himself. But the individual adult needs also to consider the damage he may cause to others—especially his own children—if he sets them the example of smoking cigarettes. If cigarette smoking could be abolished by common consent there would follow a progressive and large reduction in lung cancer deaths, in the prevalence of chronic bronchitis and, probably, various other diseases also; even a change to pipe or cigar smoking would produce improvement. Published comment on the financial results of a year's trading in tobacco which was to the effect that almost complete recovery of sales had occurred after the "cancer scare", reflects utter lack of understanding. The deaths of over 23,000 people in one year are not a "scare" but an accomplished tragedy. There is no easy way of achieving abstinence in this matter nor any panacea that medicine can provide; each cigarette smoker has to face and prevail over his own indulgence.

Smoking is an important aetiological factor in causing morbidity and mortality from other diseases than cancer of the lung. Chronic bronchitis in England and Wales in 1961 accounted for 26,668 deaths. In addition, for every 1,000 certificates on which bronchitis was stated to have been the underlying cause of death there were 737 in which it was said to have played a part. Chronic bronchitis affects seventeen per cent. of men and eight per cent. of women between the ages of 40 and 64. It is more prevalent in urban than in rural areas, is estimated to cause the loss of some 29 million working days each year and is more common in the lower socio-economic classes. There may be an element of constitutional susceptibility to chronic respiratory disease in some individuals but there are three most important factors which are believed to give rise to its development. These are atmospheric pollution, cigarette smoking and infection. The influence of these factors was emphatically underlined in the Scottish Health Service Council Report on bronchitis (produced in 1962 and published in March, 1963).

It is most important to try to prevent the onset of chronic bronchitis and to initiate early treatment in young patients before a progressive condition has been established.

The use of hormones, radio-isotopes and cytotoxic drugs in the treatment of malignant disease is also discussed in Chapter VII. The search for anti-cancer drugs has been intensive in some countries and progress has been made but it is important that, as these types of drug are harmful to all proliferating cells and hazardous to administer, they should be used with discretion.

The second report of the Royal College of Physicians on the manner in which the treatment of chronic rheumatic disease should be organized has confirmed the findings of their previous report published in 1951. This expressed the opinion that special centres responsible for research, teaching and the treatment of rheumatic diseases should be established. Only two such centres have been founded in the last twelve years and there would now seem to be a case for an increase in their number. The number of consultants working in this field is largely determined by the readiness of the profession to accept that these patients should be placed under the care of one physician specializing in this subject. Authoritative medical opinion, expressed also in the report of the Review Committee, under Sir Arthur Porritt's chairmanship, seems now to be more favourably disposed.

#### ENVIRONMENTAL HYGIENE

The fog which affected London and many provincial cities in December, 1962, brought the worst atmospheric pollution since the great fog of December, 1952. Maximum pollution by sulphur dioxide reached the same levels on the two occasions but smoke pollution was markedly reduced in those areas controlled by the Clean Air Act. It was estimated that from 3rd to 7th December 700 more people died than might have been expected had there been no fog. This figure compares with the 4,000 deaths caused by the 1952 fog and it is tempting to attribute the reduction in mortality to the reduced smoke pollution. It would be premature, however, to attempt to assess the full effects of the Clean Air Act at this stage because other factors undoubtedly played a part in lowering the mortality. A further period of observation will be needed before precise conclusions can be drawn.

Another objective at which public health efforts are being increasingly aimed is the production of clean and uncontaminated food of good quality for the consumer. Most retail shops now have an increased demand for perishable foods requiring to be stored at extremely low temperatures. As shopkeepers are not able to carry large stocks on their premises they need regularly replenished supplies. This puts an increased responsibility on those concerned with the transport of foods and it becomes even more important to ensure that the vehicles used are kept clean and hygienic. The methods employed in transporting fish from the quayside to the wholesale market and from the wholesale market to the shop may need reappraisal. In the case of other foods where successful transportation is dependent upon temperature control it is essential that the requirements be clearly defined and closely observed. The code of the international voluntary organization known as Frigoroute Europe has helped in many countries of Western Europe but is not yet binding on all the vehicle builders in this country. It

is unfortunate that considerable amounts of foodstuffs are still being surrendered or condemned because of delays and mishandling during transportation. It should be possible to reduce this loss by good packaging and improved transport methods.

#### DENTAL HEALTH

The number of dentists in the general dental service has increased by approximately 600 (less than six per cent.) from 1959 to 1962 but the number of courses of treatment (excluding emergency treatment) has increased by approximately 2,300,000 (more than a fifth) during the same period. There has been a decrease of about 240,000 in the number of emergency treatments and it is suggested in chapter VIII that more patients are obtaining regular dental treatment and fewer, therefore, reach the state at which emergency treatment is needed. The provision of dental treatment for children is also reviewed and the startling growth in the use of the general dental service by children is emphasized. It appears that two and a half times as much treatment is given in this way as in the School Dental Service. It seems likely that children now receive far more dental care than in the past, though how much this is offset by an increase in dental caries is not known. It is encouraging to note that reports on dental services by Chief Dental Officers increasingly appear in the reports of Medical Officers of Health.

The report of a study of the effect of the first five years of the fluoridation of water in Watford, Anglesey and Kilmarnock was published during the year and its main conclusions are now well known. After 5 to 5½ years of treatment there was a reduction in the incidence of dental caries in all children up to five years of age in the study areas compared with those of the same age in the control areas. This is closely comparable with experience in North America and it would seem reasonable to expect, therefore, that this improvement in the dental condition would be shown, as the demonstrations and studies proceed, to apply to all the age groups up to 14 and would be maintained in the permanent teeth of children from the fluoridation areas with the benefit of continuing into adult life in much the same way as has been shown to be the case in the natural fluoridated areas of this country and in the studies already completed in the United States and Canada. Investigations are also being undertaken to determine the precise mode of action of fluoride on the teeth and to find out the effect of a stannous fluoride toothpaste. It will be three or four years yet before the effectiveness of dentifrices with fluoride can be reliably assessed. Meanwhile local health authorities have been invited to use their powers under the National Health Service Act to introduce fluoridation. This action is still too frequently obstructed by allegations of risk to health, despite the overwhelming evidence that no such risk exists at the level of fluoridation recommended. There may be other ways in which dental caries could be reduced, but there are none which could produce such a widespread and general improvement in the dental health of children.

#### NURSING

The concept of a district general hospital (see chapter XV) will have its effect upon nursing administration for, as many disciplines of medicine are brought together in one building, a wider variety of techniques and skills

will be required for the successful management of many types of patient and the senior nurse administrator will be required to shoulder greater responsibilities in attempting to integrate and co-ordinate the training and teaching of nurses. Plans to help the successful deployment of nurses have been furthered by a study in one regional board general hospital of 500 beds where an estimation of the hours of nursing attention necessary for the care of different categories of patient has been made. It is intended that the scope of this work should be extended to include observations in more wards in other hospitals in various regions.

The interim report of a departmental working party on Progressive Patient Care was published in the Monthly Bulletin of the Ministry of Health and Public Health Laboratory Service in November, 1962. This gave advice on the planning of intensive care units in hospitals. It was estimated that on average about two per cent. of all medical and surgical patients would benefit from treatment in such units, but the figure might be as high as five per cent. in some hospitals. Essentially these units would call for the services of registered nurses throughout the twenty-four hours though senior student nurses could receive valuable experience in the care of the critically ill while assisting in the unit. Tradition has determined much of the detail as well as the final vocational aspect of nursing in the past. The new appraisal of nursing techniques of which these studies are a part may help to sustain the great increase in intensity of professional care in hospitals without making impossible demands on woman power or impairing the humanitarian qualities of the largest of the health professions.

#### MENTAL HEALTH

The development of community mental health services will enable patients who were formerly admitted to mental hospitals for social rather than medical reasons to receive appropriate treatment while still living in the community. Such services depend upon the co-operation and understanding of the public living in the community as much as upon professional services. Both the mentally ill and the subnormal make considerable demands upon social services, and facilities which exist for the social and medical care of the patient will determine whether he can be discharged from hospital. In many cases their families will also need service. Some patients will eventually return to open or sheltered employment and become completely independent, others will require to have occupational therapy provided for them either at home or in special centres. There may be a need for residential accommodation for patients who have no relatives or are unsuitable for life in a lodging house or are faced by hostility within their own family. The organization of home care services and the changing pattern of hospital care for the mentally ill and subnormal are discussed in chapter XI. The plans for activities within hospital are also being developed in many ways. Changes in organization so that each consultant psychiatrist deals with a wide range of patients have proved successful and a patient seen in the outpatient department by one particular psychiatrist can remain in his care during active treatment and rehabilitation and after discharge if treatment is again needed. The growth of comprehensive methods for care and treatment of patients with mental disorders indicates the need for a steady increase in the proportion of consultant psychiatrists

to the population, which is now 15 per million. Those patients requiring intensive treatment over a short period could well be treated in special units of a general hospital which might be more accessible to the members of the community it serves. These units might also accommodate patients requiring intensive initial rehabilitation before discharge to attend as day or outpatients, but it is essential that the acute psychiatric unit's staff should also be concerned with the patients in longer stay accommodation even if it is elsewhere. Since the forecast reduction in beds for mental illness is one of the more controversial points in the hospital plan it is of interest to note that the latest figures are consistent with the prediction made by Brooke and Tooth in 1960.

#### SOCIAL WELFARE

Social factors in the maintenance of health and the control of disability have been fully recognized only in recent years. The training of Social Workers has consequently been introduced relatively late. Many more social workers are needed to care for the elderly and for the physically and mentally handicapped members of the community. The Council for Training in Social Work which was set up during the year, under the chairmanship of Sir John Wolfenden is to promote training for social work in the health and welfare services of local authorities, to approve courses and to award its certificate to successful students.

The most rapid progress is now being made in providing arrangements for the comprehensive care of patients with mental disorders. Local authority mental welfare officers are in many areas being associated with the work of the hospitals and are able to keep contact with patients admitted to hospital or to make themselves known to patients about to be discharged who will require their help. Mental health centres which provide accommodation for the mental health services of the local authority, for child guidance, and for day hospitals for elderly psychiatric patients and for chronic mental patients and for social clubs are beginning to appear.

The domiciliary services for the physically handicapped have expanded and often include facilities for some sort of industrial work.

The provision of residential accommodation for the aged and infirm remains one of the most urgent problems for local authorities. The trend is away from the larger type of home with 50 or more beds to smaller units in which there is a large proportion of single rooms and not more than two people in any one room. It is found that these arrangements allow for better care and give the individual a valuable sense of privacy and so maintain personal dignity. During this year the National Council of Social Service has set up a Committee to investigate the work of the staff in residential homes. This Committee will recommend the training required by recruits to this field.

#### HEALTH IN WALES

The position in the Principality is summarized in Chapter XIII, which is the only published report on health conditions for Wales as a whole. An account of the prevalence of smallpox in England and Wales is given in Chapter II and only passing reference is made to it here. During the year eight cases of diphtheria were notified while in June and July there was an

outbreak of poliomyelitis in Monmouthshire involving 36 persons and oral vaccine was used in its control. The record of Wales in vaccination against poliomyelitis is better than that of England and by the end of 1962 1,013,000 persons aged six months to 40 years had received at least one dose of vaccine. It was noticeable that the response of persons under 20 years of age was much better than that of those in older age groups and by the end of the year 84 per cent. of all eligible persons under 20 years of age had been vaccinated.

The Welsh perinatal death rate is decreasing but remains higher than that in England and in an attempt to find out why this should be so a survey of the maternity services in Wales is being carried out. In 1962, 658 infants in Wales died during the first seven days of life and this was a higher figure than the number who died from the seventh day to one year (492). Clinical research programmes which are designed to resolve some of the major problems associated with early deaths of the infant are also in progress. Both these projects will take a long time to produce definitive results but it is hoped that eventually they will indicate ways in which some of the causes of avoidable perinatal deaths in Wales can be eliminated.

#### THE ARTIFICIAL LIMB SERVICE

In 1962 the number of new cases referred to the artificial limb service rose again to reach 4,251. Peripheral vascular disease was the cause of 58.4 per cent. of the 2,787 lower limb amputations. Traffic accidents were implicated on 286 occasions whereas industrial accidents were involved in only 123 cases. In upper limb amputations 248 of the 411 patients had suffered an injury which in 59 per cent. of cases was caused at work and in 22 per cent. by a traffic accident.

From 1st January, 1959, to 31st December, 1962, 339 babies with deformities of the limbs were referred to limb fitting centres. In 173 of these babies there were gross deformities of two or more limbs of the type now known to be associated with the use of the drug thalidomide in the early stages of pregnancy. The prosthetic problems presented by these children are described in Chapter XIV. In Heidelberg the response to this challenge was the rapid development of the powered limb already in use there. Dr. Marcquardt, who has been mainly responsible for this, gave great assistance to a visiting British team and Professor Trueta of Oxford, whose initiative led both to earlier information and the opportunity of obtaining the Heidelberg limb for fitting in England, has given the limb fitting service great help. This type of prosthesis may be needed for up to 100 children already known to the service, but it has a wider significance for the future development of prostheses in which external sources of power can be used. Lady Hoare's Fund has also made a valuable contribution to the rehabilitation work.

A development which immediately affects many more patients is the new patella tendon bearing leg which is now being fitted to many suitable patients.

#### TRENDS IN HOSPITAL DESIGN AND EQUIPMENT

A review of changing trends in the design of operating suites, some with as many as ten theatres, and to the consideration of intensive therapy units

where seriously ill patients, whose treatment involves the use of specialized equipment and intensive nursing, can be grouped is presented in Chapter XV.

Central recovery rooms within the theatre suite and a single centre for sterilizing instruments are features often seen in such plans. In most cases gowns, gloves and dressings will be supplied by a central sterile supply department. In hospitals where largely specialized surgery is undertaken, suitable arrangements may be made for the accommodation of physiological monitoring equipment in a separate room, usually with a communication system allowing two-way conversations between the people in the theatre and those in the recording room. The introduction of systems for intensive care may require that special areas be set apart in the hospital for this purpose or provision made within the ward units for groups of patients requiring intensive therapy.

Scanners which record the reflected vibrations from a transmitted ultrasonic pulsation are now being used in the diagnosis of such conditions as hydatidiform mole, carcinoma of the uterus and subdural haematoma. These vibrations are also being used in the treatment of Ménière's disease. Ultrasonic techniques are closely linked with radiology and for the present it would seem to be sufficient if hospital plans provide for them in radiological departments.

#### THE DISTRICT HOSPITAL CONCEPT

Hospital practice increasingly requires collaboration between specialists rather than individual surgeons and physicians working independently. The development of district general hospitals where all the disciplines representing the various branches of medicine and surgery will be assembled will make this easier. Chapter XV discusses the effect that the development of the comprehensive district general hospital will have on the methods and evolution of specialist work. It is suggested that extra facilities will be necessary in out-patient departments to enable patients to be investigated and treated there without being admitted to the wards. It is also anticipated that district general hospitals will provide accident units and accident and emergency departments which will replace the more numerous and smaller existing casualty departments. Many of the patients attending these departments at present require general practitioner rather than hospital treatment and the general practitioners may be able to do more of this, possibly on hospital premises. The inclusion of units for geriatric and short-stay psychiatric patients and the development of maternity and paediatric departments within the boundaries of the district hospital is also planned. It is not yet possible to foresee the effect that grouping of the specialties in modern buildings of efficient design will have on the need for professional time. Most existing hospitals have many obstacles to efficiency inherent in their design and even in movement and communication must cause great waste of time. It may well be that the new hospitals will make as great a contribution to economy in professional staff as in amenity for patients. The need for more professional time is insatiable and the effect of any such economy must be felt primarily in improved service to patients.

there have been innumerable occasions when help has been freely given by our clinical colleagues in general practice and the hospitals. On behalf of the staff and the Department I record our thanks.

To my professional colleagues on the staff of the Ministry I extend my thanks for their unfailing support through the year and among them especially my Deputy, Dr. N. M. Goodman, who has since retired. This report, edited for the first time by Dr. J. L. Hunt, is the work of the nursing, welfare, dental and medical staff as a whole. They have received valuable support from the General Register Office and from administrators in this Ministry.

I am, Sir,

Your obedient Servant,

G. E. GODBER.

## I

## VITAL STATISTICS

## Population

The estimated home population of England and Wales was 46,669,000 at mid-1962. This comprises all persons in the country including civilians and armed forces of this or other nations. The population had increased by more than half a million persons (503,000) since mid-1961 when the home population was 46,166,000 and may now be described in terms of a density of population of 800 persons per square mile.

Table I in Appendix A summarizes the growth of population since 1801, and gives data for males and females separately.

Not only is the 1962 figure the highest recorded for the population of England and Wales but the change from 1961 represents also the highest annual increase ever recorded. The increase can be attributed to the large number of births and an unusually large net inward balance of migration, including movement from the Commonwealth and also from other parts of the United Kingdom.

The natural increase of population, due to the excess of births registered over deaths during the calendar year 1962, was 281,000. This represents an increase of 0.61 per cent. during the year. The fluctuations of this natural increase during recent years can be seen from the following statement:

| 1945-1949* | 1950-1954* | 1955-1959* | 1960  | 1961  | 1962  |
|------------|------------|------------|-------|-------|-------|
| 0.64%      | 0.38%      | 0.44%      | 0.57% | 0.57% | 0.61% |

\* Average annual rate

The highest percentage natural increase of population over this period, 0.85 per cent., occurred in 1947.

The year cannot be considered a normal year for migration as the prospect of imminent regulating legislation led to an abnormal influx in the early months of the year. The net balance of immigration over emigration including movement from other parts of the United Kingdom is estimated to have risen from 14 thousands in 1957-58 to 225 thousands from mid-1961 to mid-1962.

Table I shows the composition of the home population, as defined above, by age and sex. To demonstrate the changes since 1951 the age distribution is also expressed as a proportion per thousand population.

TABLE 1

*England and Wales: Estimated Home Population by Age and Sex*

| Age                | Population (thousands)<br>mid-1962 |         |         | Proportion per<br>1,000 persons |       |       |
|--------------------|------------------------------------|---------|---------|---------------------------------|-------|-------|
|                    | Males                              | Females | Persons | 1951                            | 1961  | 1962  |
| 0- ... ..          | 1,942                              | 1,841   | 3,783   | 85                              | 79    | 81    |
| 5- ... ..          | 1,701                              | 1,613   | 3,314   | 73                              | 70    | 71    |
| 10- ... ..         | 1,772                              | 1,690   | 3,462   | 64                              | 79    | 74    |
| 15- ... ..         | 1,784                              | 1,714   | 3,498   | 62                              | 70    | 75    |
| 20- ... ..         | 1,467                              | 1,456   | 2,923   | 66                              | 62    | 63    |
| 25- ... ..         | 2,980                              | 2,883   | 5,863   | 145                             | 126   | 126   |
| 35- ... ..         | 3,157                              | 3,182   | 6,339   | 153                             | 136   | 135   |
| 45- ... ..         | 3,132                              | 3,240   | 6,372   | 137                             | 140   | 136   |
| 55- ... ..         | 2,568                              | 2,945   | 5,513   | 105                             | 118   | 118   |
| 65- ... ..         | 1,457                              | 2,136   | 3,593   | 74                              | 77    | 77    |
| 75- ... ..         | 599                                | 1,106   | 1,705   | 31                              | 37    | 37    |
| 85 and over ... .. | 92                                 | 212     | 304     | 5                               | 6     | 7     |
| All ages ... ..    | 22,651                             | 24,018  | 46,669  | 1,000                           | 1,000 | 1,000 |

The decade 1951-61 has marked, for the time being at least, the end of a phase of "growing-up" of the population structure which followed a period of rejuvenation during the latter part of the 19th century. Until just beyond the turn of the century birth rates were high so that in 1911 the proportion of the population in the 0-14 age-group was, in comparison with a stable structure, very high at 30.6 per cent. and the proportion aged 65 and over was very low at 5.2 per cent. As successive generations became smaller so the proportion 0-14 fell quite rapidly to 23.9 per cent. in 1931 and would have been lower in 1951 when it was 22.2 per cent. but for the high birth rates of the years 1946-47. The proportion aged 65 and over rose until in 1951 it reached 11.0 per cent. These later proportions were rather closer to those typical of a population with prolonged stability of birth and death rates. After 1955, however, there was a sharp rise in the birth rate. The proportion 0-14 has risen to 22.6 per cent. in 1962 and while this rise is mainly attributable to the immediate post-war births, there is no doubt that from now on the present high birth rates will influence the proportion to an increasing extent. By 1975 if present rates are maintained it will probably be almost 25 per cent. The proportion 65 and over is still increasing and will continue to do so as the large pre-1911 generations reach this age-group, but soon the increasing share of the population taken by the younger age-groups will reduce the rise and by 1975 the proportion is now expected to be less than 14 per cent., smaller than expected in pre-1955 forecasts.

This reference to proportions should not be allowed, however, to obscure the rise in numbers of old people. The number aged 65 and over, now 5.6 millions, will go on rising and in 1975 will reach 7.0 millions. The rise in births affects their share of the total population, but not their numbers, so that the absolute size of the problem of geriatric care will grow larger.

The forecasting of births is a hazardous operation. In 1955 the official population projection implied that there would be 630,000 live births in England and Wales in 1975 but each year since then the estimate has been increased. The latest projection to be published, as from mid-1962, implies that in 1975 there will be 891,000 live births, almost a quarter of a million more than expected seven years ago. Each projection, at the time when it was made, was a correct portrayal of the existing trend, but it could not foreshadow the unexpected change of trend.

The actual annual live births (in thousands) starting from 1951 have been: 678, 674, 684, 674, 668, 700, 723, 741, 749, 785, 811, 839. Looking in 1955 at the annual births in previous years there was no evidence to indicate the sharp rise in 1956 from 668 to 700 thousands. After a slackening of the rise in 1959, the further rapid rise in 1960 was equally unexpected. Changes of trend of this kind cannot be forecast. The official projection indicates what will happen if existing trends persist, not whether existing trends will change.

What do we mean by "the existing trend"? There are four main elements controlling the current annual flow of births—the number of women getting married, the age at which they get married, the overall size of family they produce, and the rate at which they produce it (the birth spacing). For the first two factors we are on sure ground. Marriage rates have been very high and for the average spinster marriage prospects are about as high as they can be. The latest marriage rates imply that 96.4 per cent of spinsters will be married by the time they reach the 45-49 age group. This proportion is unlikely to rise much higher. The rise in marriage rates has been most marked at the younger ages; the average age at marriage is falling. For a spinster marrying a bachelor the average age at marriage in 1946-50 was 23.8 years; in 1961 it was 22.4. But as to the third factor, the average size of completed family, there is very little evidence. This is because any trend takes time to emerge. It is not until the marriages of a particular year have been in existence for ten years or so and are getting near the end of their family building that their average size of family can be assessed. There has as yet been no indication of any substantial increase in average completed family size. The average size of family for the 1946 marriages (now of 17 years' duration) looks like being 2.2 children; the official projection implies that the 1950 marriages will have 2.3 children. The critical issue is whether the shorter birth spacing means more babies or the same number of babies in a shorter time. The projection is based upon the view that family planning is a very real feature in post-war Britain and that in time the contribution to the family from the later years of marriage will shrink significantly; a levelling off of average family size at 2.4 seems probable. It is important to remember that this contribution of the later years of marriage is still in the future and has made little impact on the current increase in births, most of which is due not to larger families but to more marriages, earlier marriages and shorter birth spacing, i.e. to births occurring now which would have occurred later but for these trends. Therefore, although the fourth factor is still uncertain, there are signs that married women are completing their families earlier after marriage than their predecessors.

## Births and Deaths

A summary of the number of births and deaths in recent years with rates for stillbirths and neonatal and infant mortality is given in Appendix A at the end of this volume in Table II. During 1962 the number of live births that occurred in England and Wales was 838,736 equivalent to a birth rate of 18.0 per thousand population, and an increase of 3.4 per cent above the figure for 1961.

**TABLE II**  
*Expectation of Life*

| Year          | At Birth |        | At Age 1 Year |        |
|---------------|----------|--------|---------------|--------|
|               | Male     | Female | Male          | Female |
| 1841 ... ..   | 40       | 42     | 47            | 48     |
| 1871-80... .. | 41       | 45     | 48            | 50     |
| 1901-10... .. | 49       | 52     | 56            | 58     |
| 1930-32... .. | 59       | 63     | 62            | 65     |
| 1950-52... .. | 66       | 72     | 68            | 72     |
| 1955-57... .. | 68       | 73     | 69            | 74     |
| 1960-62... .. | 68       | 74     | 69            | 74     |

The expectation of life has increased considerably since 1841, the first year shown in Table II. One important fact to be specially noted in examining mortality trends as reflected by the expectation of life at birth is that if child mortality is reduced so that, to take a single but exaggerated example, all those who formerly died before age 10 survive an additional 40 years, then the death rates at ages beyond 50 will be unaffected. Thus, though the expectation of life at birth will be increased, the expectation at these older ages will be unaltered. Something like this has been happening in this country. The major gains in mortality have indeed been at young ages and much less progress has been made at advanced ages. In consequence the expectation at birth for males has risen by 28 years from 40 in 1841 to 68 in 1961, while at age 65 for example the expectation has only increased by little more than one tenth from 10.9 to 11.9. Even for females, who have experienced greater improvement in longevity, the increase at age 65 is only 3 years or so.

As regards expectation of life at birth the increase has been steady throughout though the change to be expected over a short period of time is small.

### Death Rates in Different Age Groups

The stillbirth rate continued the favourable trend of recent years and was the lowest ever recorded in England and Wales. Stillbirths were 18.1 per thousand total (live and still) births, compared with a rate of 19.0 in 1961 and of 22.7 ten years ago. The fall in stillbirths has not been at a uniform rate but it has continued for eight years.

The infant mortality rate was 21.7 per thousand live births during the first year of life; in 1961 the rate was 21.4 and in 1952 it was 27.6. The

neonatal mortality rate during the first four weeks of life declined to 15.1 (15.3 in 1961).

*Changes in Death Rates as a Percentage of the Rate in the Earlier Year*

| Age Group   | Change between<br>1961 and 1962 |         | Change between<br>1962 and 1952 |         |
|-------------|---------------------------------|---------|---------------------------------|---------|
|             | Males                           | Females | Males                           | Females |
| 0-*         | + 2.5                           | - 0.5   | -20.7                           | -22.4   |
| 1-          | - 9.6                           | - 3.8   | -28.8                           | -25.2   |
| 5-          | - 8.3                           | - 3.0   | -22.8                           | -22.0   |
| 10-         | + 7.5                           | —       | -14.0                           | -26.5   |
| 15-         | - 1.1                           | - 7.7   | + 2.2                           | -30.8   |
| 20-         | —                               | - 5.8   | -17.3                           | -35.5   |
| 25-         | - 7.0                           | + 4.1   | -25.2                           | -30.9   |
| 35-         | - 0.8                           | + 1.1   | -12.7                           | -14.8   |
| 45-         | —                               | - 1.3   | - 8.3                           | -10.4   |
| 55-         | + 0.9                           | + 0.9   | —                               | - 9.2   |
| 65-         | —                               | - 2.6   | + 2.3                           | - 6.8   |
| 75-         | - 0.1                           | - 1.0   | + 1.5                           | - 3.8   |
| 85 and over | + 3.9                           | —       | + 0.8                           | + 7.1   |
| ALL AGES    | —                               | - 0.9   | + 3.3                           | + 7.6   |

\* Rates based on live births, not population living.

Death rates in individual age-groups for the past three years are shown in Table III of Appendix A, and death rates for each of the first five years of life for a longer series of years are given in Table XII of that appendix.

### Standardized Mortality Ratio

In order to use the number of deaths as an index of changed conditions of health, it is necessary to make adjustments both for the increase in total population and for alterations in the age structure of the population. The method of standardization applied since 1958 (see pages 23 and 24 of this report for that year) takes the annual death rates in separate age groups for each sex during the three years 1950-52 in England and Wales as the standard rates. The deaths which would be expected to occur, if these standard rates had been in operation can be calculated for each age group, and the S.M.R. (Standardized Mortality Ratio) is the ratio of observed deaths to expected deaths, expressed as a percentage.

The method can be applied to deaths from all causes, or to deaths from specified causes; in the latter case the corresponding standard rates based on the 1950-52 mortality experience must first be determined. Comparison of S.M.Rs. for males and females throws no light on their relative mortality, but compares changes in the rates for the two sexes.

The S.M.R. for deaths from all causes in England and Wales is given below for a number of past years. Fluctuations during recent years appear to be related to the occurrence of epidemics of influenza and winter respiratory disease.

**Standardized Mortality Ratios, 1901-1962 (England and Wales)**  
Deaths from All Causes

|                | 1901 | 1931 | 1950-1952<br>(Base) | 1953-1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|----------------|------|------|---------------------|-----------|------|------|------|------|------|
| Males ... ..   | 251  | 133  | 100                 | 96        | 95   | 94   | 92   | 95   | 96   |
| Females ... .. | 281  | 150  | 100                 | 91        | 90   | 89   | 87   | 90   | 89   |
| Persons ... .. | 266  | 142  | 100                 | 93        | 92   | 91   | 89   | 92   | 92   |

Changes in the relative importance of the major causes of death are summarized in Table III, where each cause is shown as a percentage of deaths from all causes.

**TABLE III**

*Some causes of death as a percentage of deaths from all causes*

| ICD No.   | Cause                                | 1951 | 1958 | 1959 | 1960 | 1961 | 1962 |
|-----------|--------------------------------------|------|------|------|------|------|------|
| 001-019   | Tuberculosis ... ..                  | 2.5  | 0.9  | 0.7  | 0.7  | 0.6  | 0.6  |
| 020-138   | All other infectious diseases ... .. | 0.7  | 0.5  | 0.4  | 0.4  | 0.4  | 0.4  |
| 162-163   | Cancer of lung ... ..                | 2.4  | 3.8  | 4.0  | 4.2  | 4.1  | 4.3  |
| Rem. of   | All other forms of cancer ... ..     | 13.3 | 14.4 | 14.4 | 14.6 | 14.0 | 14.0 |
| 140-205   |                                      |      |      |      |      |      |      |
| 420.1     | Coronary artery disease ... ..       | 10.5 | 15.7 | 15.9 | 17.2 | 17.0 | 18.0 |
| 400-402   | { Acute rheumatism and rheumatic     |      |      |      |      |      |      |
| 410-416   | heart disease ... ..                 | 2.0  | 1.4  | 1.4  | 1.4  | 1.4  | 1.3  |
| Rem. of   | All other diseases of circulatory    |      |      |      |      |      |      |
| 400-468   | system ... ..                        | 23.2 | 20.4 | 19.1 | 19.2 | 18.7 | 18.0 |
| 500-502   | Bronchitis ... ..                    | 6.8  | 5.6  | 5.5  | 5.0  | 5.7  | 6.0  |
| Rem. of   | All other diseases of respiratory    |      |      |      |      |      |      |
| 470-527   | system ... ..                        | 8.0  | 6.0  | 7.5  | 5.8  | 7.6  | 7.1  |
| 530-587   | Diseases of digestive system ... ..  | 3.1  | 2.9  | 2.8  | 2.9  | 2.8  | 2.8  |
| 590-637   | Disease of genito-urinary system     | 2.5  | 2.0  | 2.0  | 2.0  | 1.9  | 1.8  |
| E810-E825 | Motor traffic accidents ... ..       | 0.8  | 1.0  | 1.1  | 1.2  | 1.2  | 1.1  |
| Rem. of   | Other accidents, poisonings and      |      |      |      |      |      |      |
| E800-E999 | violence ... ..                      | 2.8  | 3.2  | 3.2  | 3.1  | 3.0  | 3.2  |

**Causes of Death**

The numbers of deaths assigned to the principal causes of disease during 1962 and also during the previous five years are given in Table IV of Appendix A.

Mortality from tuberculosis showed a marked decline being 7 per cent. lower than in the previous year. Deaths from all forms of tuberculosis were 3,088 (66 per million population), 248 less than in 1961 and 29 per cent. of the number in 1952. This reduction, compared with the smaller change between 1960 and 1961, is probably associated with the lesser prevalence of influenza during the year 1962.

Diphtheria mortality is at a low level, and two deaths were recorded due to this disease; in 1961 there were ten and in 1960 five deaths.

Whooping cough accounted for 24 deaths, the lowest number ever recorded and less than 1 per cent. of the deaths thirty years ago.

Syphilis again shows a decline in deaths from 900 in 1961 to 822 in 1962.

The number of deaths from poliomyelitis was 18, 41 less than in 1961.

Deaths from typhoid and paratyphoid fever were 7 and deaths from dysentery were 28 compared with 2 and 34 respectively in 1961.

Epidemic respiratory infections were less prominent during 1962. Deaths from influenza (3,308) were less than half the number reported in 1961 (7,102) but considerably above the number in 1960 (1,098).

The number of persons dying of cancer exceeded 100,000 in a single year for the first time in 1962, and of this number almost one quarter (23 per cent.) were deaths from cancer of the lung and bronchus. Cancer deaths of all sites (101,608) were 1,693 more than in 1961, and deaths from lung cancer (23,779) were 969 more than in the previous year. This is double the number of deaths from lung cancer 13 years ago. Two smaller increases were recorded for cancer of the breast 9,430 (9,367 in 1961), and deaths from leukaemia 2,707 (2,645 in 1961).

Cancer is not entirely a disease of old age. The greatest number of deaths from all causes occur between the ages of 75-80, but for cancer the mode is a decade earlier, and for particular sites it may be earlier still. Cancer of the lung produces the heaviest mortality between the ages of 60-65, as does cervical cancer of the uterus; and neoplasms of the brain produce the largest number of deaths between the ages of 55-60.

Even in children, with the decline in deaths from infective diseases, deaths from neoplasms are relatively important as a cause of death, although absolute numbers are much smaller than at later ages. Deaths from neoplasms in children between the ages of 1-5 (11 per hundred thousand children) are one eighth of deaths from all causes; between the ages of 5-15 deaths from neoplasms (7 per hundred thousand) are one sixth of deaths from all causes. The principal forms met with in children are leukaemia and neoplasms of the brain and kidney. At a slightly later age (between 15-25) Hodgkins disease and neoplasms of bone and gonads become more prominent as causes of death.

TABLE V

*Cancer : Standardized Mortality Ratios, 1931-1962*

| ICD No.         |                           |         | 1931 | 1951 | 1958 | 1959 | 1960 | 1961 | 1962 |
|-----------------|---------------------------|---------|------|------|------|------|------|------|------|
| 162, 163        | Cancer of lung ...        | Males   | 19   | 101  | 142  | 149  | 153  | 156  | 160  |
|                 |                           | Females | 44   | 99   | 121  | 124  | 132  | 140  | 145  |
| 204             | Leukaemia ...             | Males   | 45   | 96   | 121  | 121  | 134  | 126  | 123  |
|                 |                           | Females | 45   | 104  | 113  | 125  | 124  | 125  | 131  |
| Rem.<br>140-205 | All other forms of cancer | Males   | 114  | 101  | 93   | 92   | 91   | 91   | 91   |
|                 |                           | Females | 115  | 98   | 94   | 93   | 93   | 92   | 92   |
| 140-205         | All forms of cancer ...   | Males   | 86   | 101  | 106  | 107  | 108  | 108  | 109  |
|                 |                           | Females | 108  | 99   | 97   | 97   | 97   | 96   | 96   |
|                 |                           | Persons | 97   | 100  | 101  | 102  | 102  | 102  | 102  |

Standardized on the basis of deaths in 1950-52

In the younger age groups accidental death plays an important role, and accounts for one third of all deaths of males between the ages of 1-15 and more than one half of all deaths between the ages of 15-25. For females the

proportions are rather lower, about one quarter and one third respectively for the same age groups. In both age groups motor vehicle traffic accidents form the largest single cause of accidental death, followed by falls, drowning and burns and scalds, in order of numerical importance. Various forms of accident affect the sexes differently. Small boys suffer much more than small girls, particularly from falls: but girls are more liable to fatal accidents from burns. After the age of 15, males are much more liable than females to die in traffic accidents, but a welcome check to this rising toll appears to have occurred in 1962.

Cardiovascular disease forms one of the biggest groups among the causes of death, and is pre-eminently a disease of old age. Its relative importance will increase as the proportion of old persons in the community increases. Although dependent upon degenerative changes in the heart, the final fatal illness is often precipitated by inclement weather, epidemics of influenza or other infections, so that year to year fluctuations are largely reflections of such epidemics in the community, just as the long term trend reflects the increasing number of old persons. Some forms of heart disease of known aetiology have shown decreases—rheumatic heart disease and syphilis; others such as congenital malformations record increases, but this is likely to be the result of increased diagnostic and therapeutic interest in these conditions.

Diseases of the respiratory system are in general diseases either of the old or the very young. Pneumonia (30,909 deaths in 1962) like heart disease, varies with the weather and the occurrence of epidemics of respiratory infections. Bronchitis still kills many more people (33,293 in 1962) than cancer of the lung. Although it too is influenced by smoking and air pollution, the death rate from bronchitis has remained at much the same level in recent years; while that of lung cancer has risen steadily.

December, 1962, produced a "smog" episode comparable with the 1952 catastrophe but fortunately not so destructive of life. Five days of almost continuous fog lasted from December 3rd to 7th with a mean temperature of  $-0.9^{\circ}\text{C}$ . ( $30.4^{\circ}\text{F}$ ). Its effects were most marked in the London basin, but appreciable effects were also produced in the north, especially in the West Yorkshire conurbation. Data for London (Administrative County) are given for 1952 and 1962, covering the last week in November in each year and the first three weeks of December.

|                                                                                             | 1952<br>Week ending |          |              |       | 1962<br>Week ending |          |              |      |
|---------------------------------------------------------------------------------------------|---------------------|----------|--------------|-------|---------------------|----------|--------------|------|
|                                                                                             | Nov.<br>29th        | 6th      | Dec.<br>13th | 20th  | Dec.<br>1st         | 8th      | Dec.<br>15th | 22nd |
| Temperature, departure from average ( $^{\circ}\text{C}$ ) ...                              | -3.5                | -4.1     | -1.8         | -0.7  | +1.5                | -4.8     | +1.4         | +0.6 |
| Smoke, $\text{mg}/\text{m}^3$ ...                                                           | 0.32                | 0.67     | 0.49         | 0.18  | 0.20                | 0.35     | 0.07         | 0.17 |
| Maximum $\text{SO}_2$ ...                                                                   |                     | 1.34 ppm |              |       |                     | 1.90 ppm |              |      |
| Deaths, all causes ...                                                                      | 853                 | 945      | 2,484        | 1,523 | 923                 | 1,028    | 1,125        | 974  |
| Deaths from bronchitis                                                                      | 73                  | 76       | 704          | 396   | 39                  | 126      | 158          | 107  |
| New claims (000's) to sickness benefit, London and Middlesex (week ending 3 days later) ... | 19.0                | 20.3     | 28.9         | 16.3  | 20.8                | 30.3     | 18.8         | 10.7 |

The cold spell was of more limited duration in 1962 and the air pollution returned to normal values more quickly. About one third of the excess deaths were accounted for by bronchitis in each case. Additional sickness claims were about the same in the two years.

### Maternal Mortality

The striking reduction in the maternal mortality rate to less than one-tenth of its amount thirty years ago is shown in Table X on page 30 and details of this mortality are shown in Appendix A Tables VII and VIII. The numbers of deaths in any category, and even for the group as a whole, are now so low (299 in 1962 and 274 in 1961) that the changes from year to year are likely to be overshadowed by chance fluctuations: assessment of the rate of improvement needs to be based on changes over several years.

In the past ten years the maternal mortality rate has been reduced to approximately half its original amount (67 deaths per 100,000 births in 1952); some causes of this mortality, such as toxæmia, have decreased even more.

Improvements in medical practice in one country are likely to be adopted in others, and the reduction in maternal mortality rates is found in other countries too. A selection of those whose published data compare favourably with England and Wales is given in Table VI.

TABLE VI  
*Maternal deaths: Rate per 100,000 live births*

|                   | 1950-52 | 1958 | 1959 | 1960 | 1961 | 1962              |
|-------------------|---------|------|------|------|------|-------------------|
| England and Wales | 82      | 44   | 39   | 39   | 34   | 36                |
| Scotland ...      | 109     | 53   | 36   | 35   | 37   |                   |
| Netherlands ...   | 89      | 41   | 50   | 39   | 38   |                   |
| Sweden ...        | 69      | 30   | 24   | 37   |      |                   |
| New Zealand*      | 77      | 41   | 49   | 34   |      |                   |
| United States ... | 75      | 38   | 36   | 32   | 32   | Not yet available |

\* excludes Maori population.

### Stillbirths

Some limited information about foetal mortality can be obtained through the Hospital In-Patient Enquiry concerning abortions admitted to hospital, but foetal deaths are not registrable until the 28th week of pregnancy. Although the number of births in 1962 was higher than in recent years, the stillbirth rate was the lowest since records have been available, being 18.1 per thousand total births compared with 19.0 in 1961.

It is possible to compare the number of stillbirths in England and Wales with experience in other countries much more satisfactorily now that information about the causes of stillbirth is available. Accidental haemorrhage, i.e. not due to placenta praevia, but with a normally implanted placenta, is an important cause; it is found that England and Wales occupies an intermediate position between the Scottish practice and most other countries of the world in the way in which stillbirths due to this cause are allocated.

|                              | Percentage of all stillbirths                                   |                                                                     |
|------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------|
|                              | due to haemorrhage<br>without mention of<br>placental condition | due to premature<br>separation of<br>normally implanted<br>placenta |
|                              | ICD Y32.2                                                       | ICD Y36.2, 4                                                        |
| Scotland ... .. (1961)       | 12.8%                                                           | 2.1%                                                                |
| New Zealand... .. (1953-5)   | 7.2%                                                            | 5.1%                                                                |
| England and Wales ... (1961) | 3.3%                                                            | 7.1%                                                                |
| Japan* ... .. (1960)         | 0.08%                                                           | 4.7%                                                                |
| Canada ... .. (1953-5)       | 1.0%                                                            | 11.2%                                                               |
| Denmark ... .. (1955-6)      | 0.29%                                                           | 10.9%                                                               |

\* Spontaneous stillbirths attended by physician, completed 7 months gestation.

### *Legitimate Stillbirths by Cause according to Parity of Mother*

*Number and Rate per 1,000 Total Births*      **1962**      *England and Wales*

| Major Causes of Stillbirth     |                                                     | Total                   | Number of previous children of all<br>marriages live and stillborn |       |       |       |       |     |              |
|--------------------------------|-----------------------------------------------------|-------------------------|--------------------------------------------------------------------|-------|-------|-------|-------|-----|--------------|
|                                |                                                     |                         | 0                                                                  | 1     | 2     | 3     | 4-5   | 6-7 | 8 or<br>more |
| ICD<br>No.                     | ALL CAUSES ... ..                                   | No. 14,175<br>Rate 17.8 | 5,500                                                              | 3,031 | 2,196 | 1,350 | 1,409 | 446 | 243          |
| Y30                            | Chronic disease in mother ...                       | No. 424<br>Rate 0.5     | 141                                                                | 99    | 66    | 35    | 57    | 12  | 14           |
| Y32.2                          | Haemorrhage and premature<br>separation of placenta | No. 1,527<br>Rate 1.9   | 443                                                                | 319   | 261   | 183   | 213   | 56  | 32           |
| Y32.3-<br>Y32.4                | Toxaemia of pregnancy in-<br>cluding eclampsia      | No. 1,991<br>Rate 2.5   | 984                                                                | 352   | 256   | 164   | 160   | 49  | 26           |
| Y34.2                          | Difficult labour with mal-<br>position              | No. 526<br>Rate 0.7     | 167                                                                | 109   | 95    | 54    | 64    | 26  | 11           |
| Y36.0                          | Cord conditions ... ..                              | No. 1,146<br>Rate 1.4   | 402                                                                | 262   | 188   | 102   | 118   | 49  | 25           |
| Y37                            | Birth injury ... ..                                 | No. 335<br>Rate 0.4     | 169                                                                | 59    | 48    | 33    | 33    | 5   | 8            |
| Y38.0                          | Anencephalus ... ..                                 | No. 1,432<br>Rate 1.8   | 645                                                                | 326   | 198   | 124   | 110   | 39  | 10           |
| Y38.00<br>& Y38.2              | Spina bifida ... ..                                 | No. 465<br>Rate 0.6     | 207                                                                | 112   | 56    | 37    | 36    | 11  | 6            |
| Y38.1<br>& Y38.20              | Hydrocephalus ... ..                                | No. 694<br>Rate 0.9     | 253                                                                | 173   | 110   | 62    | 64    | 23  | 9            |
| Y39.2                          | Erythroblastosis ... ..                             | No. 647<br>Rate 0.8     | 40                                                                 | 153   | 189   | 118   | 104   | 31  | 12           |
| Y39.4                          | Miscarriage ... ..                                  | No. 899<br>Rate 1.1     | 362                                                                | 214   | 138   | 78    | 76    | 20  | 11           |
| TOTAL LIVE AND STILLBIRTHS ... |                                                     | 797,535                 |                                                                    |       |       |       |       |     |              |

### **Infant Mortality**

Deaths of infants under the age of four weeks again declined; the mortality rate for all infants under the age of one year was 21.7 per 1,000 live births. This rate was 21.4 in 1961 and 27.6 ten years ago.

Table IX of Appendix A shows the mortality for the two sexes separately, and for children of legitimate and illegitimate births at various periods during the first year of life. It is recognized that the causes of death immediately after birth are more akin to the causes of stillbirth, and differ from the causes operating later in the first year of life. For this reason, and also to avoid differences of definition when making international comparisons, it is desirable to consider early and later infant mortality separately.

Perinatal mortality (i.e. foetal death and death in the first week of life) declined slightly in 1962, the stillbirth rate (18.1) and the neonatal mortality rate (15.1) both being lower than in 1961. The decrease was greatest for deaths ascribed to immaturity, asphyxia and atelectasis, and to other causes. Slight increases were recorded in deaths from respiratory infections and congenital malformations.

TABLE VII

*Perinatal Mortality and Later Infant Mortality per 1,000 total (live and still) births*

|                                                                           | 1931 | 1941 | 1951 | 1958 | 1959 | 1960 | 1961 | 1962 |
|---------------------------------------------------------------------------|------|------|------|------|------|------|------|------|
| Still births and deaths under 1 week per 1,000 total births ...           | 62.1 | 54.7 | 38.2 | 35.0 | 34.1 | 32.8 | 32.0 | 30.8 |
| Deaths of infants aged 1 week but under 1 year per 1,000 total births ... | 42.4 | 37.7 | 14.0 | 8.5  | 8.5  | 8.3  | 8.0  | 8.5  |

The particular forms of malformation causing stillbirth are conditions which are incompatible with life, or even with the continuation of pregnancy. Death soon after birth occurs with malformations which preclude independent alimentation and metabolism, whilst other defects—such as those of the cardiovascular system—do not meet their severest tests until the child attempts to undertake a more active existence. There has been a rise in infant mortality due to this latter group of congenital malformations (infants aged four weeks and over) as well as in perinatal deaths, which might be due to greater interest in determining the cause of these deaths.

TABLE VIII

*Causes of infant deaths between the ages of four weeks and one year  
Rate per 100,000 live births*

| ICD No. | Cause                            | 1951  | 1958 | 1959 | 1960 | 1961 | 1962 |
|---------|----------------------------------|-------|------|------|------|------|------|
| 001-138 | Infective and parasitic diseases | 97    | 23   | 23   | 19   | 21   | 18   |
| 500-502 | Bronchitis ...                   | 63    | 44   | 49   | 43   | 36   | 45   |
| 490-493 | Pneumonias ...                   | 372   | 197  | 197  | 214  | 198  | 220  |
| 571     | Gastro-enteritis ...             | 109   | 32   | 34   | 38   | 40   | 47   |
| 750-759 | Congenital malformations ...     | 155   | 169  | 170  | 165  | 164  | 162  |
|         | All other causes ...             | 302   | 171  | 161  | 150  | 151  | 168  |
|         | All causes ...                   | 1,097 | 637  | 634  | 628  | 610  | 659  |

The diseases which contribute to infant mortality after the first month of life are shown in Table VIII. The increase in respiratory infections already noted for neonatal deaths is apparent in deaths of older infants. Intestinal infections also caused more deaths than have occurred in recent years.

Some other countries have achieved even lower rates of infant mortality, and comparison with them is made in Table IX. The advance made by Finland is particularly worthy of note.

**TABLE IX**  
*Countries with low infant mortality*  
*Rate per 1,000 live births*

|                   | 1951-55 | 1958 | 1959 | 1960 | 1961 | 1962 |
|-------------------|---------|------|------|------|------|------|
| England and Wales | 27      | 23   | 22   | 22   | 21   | 22   |
| Australia ...     | 23      | 20   | 22   | 20   | 20   |      |
| New Zealand* ...  | 22      | 19   | 20   | 20   | 19   |      |
| Netherlands ...   | 22      | 17   | 17   | 17   | 16   |      |
| Sweden ...        | 19      | 16   | 17   | 16   | 16   |      |
| Finland ...       | 32      | 25   | 24   | 21   | 20   |      |

\* Excludes Maori population.

### Mortality 1931 to 1962

Some principal mortality statistics are set out in Table X in order to demonstrate the changes over the past thirty years. The rates used for some have been calculated to a higher degree of accuracy than usual in order to facilitate comparisons with previous years: they are accompanied by a theoretical standard error which estimates the fluctuation to be expected due to chance alone, based on the last year of the series. Although the rise in deaths from lung cancer is considerable, it does not by any means compare with the decrease in tuberculosis.

**TABLE X**  
*Principal Mortality Statistics, England and Wales, 1931 to 1962*

|                                      | 1931  | 1941  | 1951  | 1958  | 1959  | 1960  | 1961  | 1962  | (p)    |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Deaths from all causes               |       |       |       |       |       |       |       |       |        |
| Rate per 100,000 living              | 1,229 | 1,354 | 1,254 | 1,168 | 1,163 | 1,150 | 1,195 | 1,195 | (± 16) |
| S.M.R. (1950-52=100)                 | 142   | 126   | 106   | 92    | 91    | 89    | 92    | 92    |        |
| Stillbirths                          |       |       |       |       |       |       |       |       |        |
| Rate per 100,000 total births        | 4,087 | 3,480 | 2,305 | 2,152 | 2,080 | 1,975 | 1,902 | 1,810 | (± 15) |
| Infant deaths under 1 year           |       |       |       |       |       |       |       |       |        |
| Rate per 100,000 live births         | 6,635 | 5,966 | 2,985 | 2,253 | 2,222 | 2,181 | 2,144 | 2,168 | (± 16) |
| Deaths at ages 1-14                  |       |       |       |       |       |       |       |       |        |
| Rate per million living              | 3,344 | 2,734 | 798   | 504   | 523   | 519   | 527   | 513   |        |
| Maternal deaths (including abortion) |       |       |       |       |       |       |       |       |        |
| Rate per 100,000 total births        | 411   | 280   | 76    | 43    | 38    | 39    | 33    | 35    |        |
| Diphtheria deaths                    | 2,612 | 2,641 | 30    | 8     | —     | 5     | 10    | 2     |        |
| Acute poliomyelitis deaths           | 99    | 160   | 191   | 129   | 66    | 23    | 59    | 18    |        |
| Tuberculosis deaths (all forms)      |       |       |       |       |       |       |       |       |        |
| Rate per million living              | 874   | 730   | 315   | 99    | 85    | 75    | 72    | 66    |        |
| Lung cancer deaths                   |       |       |       |       |       |       |       |       |        |
| Rate per million living              | 57    | 132   | 301   | 439   | 464   | 481   | 494   | 510   |        |
| Cancer of other sites                |       |       |       |       |       |       |       |       |        |
| Death rate per million living        | 1,427 | 1,527 | 1,663 | 1,684 | 1,674 | 1,678 | 1,670 | 1,668 |        |

Figures in brackets are theoretical standard errors of 1962 data.

### Notifiable Infectious Diseases

Table XIII of Appendix A shows the number of cases of infectious disease notified by medical practitioners in 1962 and the previous three years. The original notifications are based on those published in the Weekly Return of the Registrar General: corrected notifications after confirmation of diagnosis are also received from Medical Officers of Health but not from Port Health Authorities. The numbers include non-civilian cases.

Infectious diseases are commented upon individually in Chapter II later in this report. There has been a gratifying decrease in notifications for many of these diseases, including diphtheria, 16 notifications (51 in 1961), meningococcal infection, 575 (651), paratyphoid fevers, 118 (251) and whooping cough, 8,347 notifications (24,469 in 1961).

For those infectious diseases which show irregular fluctuation from year to year, comment has to be more cautious. There were fewer notifications of measles, 184,757 (compared with 763,465 in 1961) but this figure is higher than the 159,315 notified in 1960. Acute paralytic poliomyelitis with 211 notifications (705 in 1961) is less, but not much below the 1960 figure of 257.

Other diseases show changes to which little significance can be attached, but there is a disappointing increase in notifications of typhoid fever, 127 (93 in 1961) the highest number since 1958.

### International Comparisons

Comparison of mortality experience in countries with different hazards to health, though interesting, is an unreliable method of estimating the effect of such hazards. Since differences of method and interpretation from one country to another affect these comparisons more than differing hazards. Furthermore, the factors which may influence any disease are often multiple, are sometimes correlated with each other and are not completely known. Satisfactory knowledge about the occurrence of many of these aetiological factors may also be available.

In Table XI countries of Western Europe are listed in ascending order of proportion of male population engaged in agriculture (including forestry, hunting and fishing). This percentage based on census data of different years is given in brackets immediately after the name of the territory.

TABLE XI

*International comparison of death rates per 1,000 population*  
*Males*

|                                |           | Year | Under<br>1<br>year† | 1-4   | 5-14 | 15-24 | 25-44 | 45-64 | 65<br>and<br>over | All<br>Ages |
|--------------------------------|-----------|------|---------------------|-------|------|-------|-------|-------|-------------------|-------------|
| England and<br>Wales ...       | (6%)      | 1962 | 24.5                | 0.9   | 0.4  | 1.0   | 1.8   | 14.0  | 82.8              | 12.6        |
| Federal German<br>Republic ... | (10%)     | 1959 | 38.0                | 1.6   | 0.6  | 1.6   | 2.2   | 13.0  | 75.7              | 12.0        |
| Belgium ...                    | (14%)     | 1959 | 34.4                | 1.4   | 0.6  | 1.2   | 2.0   | 13.4  | 72.6              | 12.4        |
| Switzerland ...                | (15%)     | 1959 | 25.6                | 1.4   | 0.5  | 1.5   | 2.1   | 11.4  | 69.0              | 10.3        |
| Sweden ...                     | (17%)     | 1959 | 19.2                | 1.0   | 0.5  | 1.1   | 1.6   | 8.7   | 64.0              | 10.0        |
| Netherlands ...                | (20%)     | 1960 | 18.5                | 1.3   | 0.5  | 0.8   | 1.5   | 9.8   | 62.1              | 8.3         |
| Austria ...                    | (25%)     | 1959 | 43.5                | 1.9   | 0.6  | 1.9   | 2.6   | 15.1  | 78.1              | 13.7        |
| France ...                     | (26%)     | 1960 | 26.3                | 1.3   | 0.4  | 1.1   | 2.4   | 14.5  | 77.1              | 11.9        |
| Denmark ...                    | (26%)     | 1959 | 25.7                | 1.0   | 0.4  | 1.0   | 1.8   | 9.9   | 64.8              | 9.8         |
| Norway ...                     | (31%)     | 1959 | 21.2                | 1.1   | 0.6  | 1.2   | 1.8   | 9.3   | 62.1              | 9.4         |
| Italy ...                      | (p) (40%) | 1959 | 48.9                | 12.4† | 0.7  | 1.2   | 2.1   | 11.4  | 67.2              | 9.7         |
| Irish Republic ...             | (46%)     | 1961 | 33.5                | 1.5   | 0.5  | 0.7   | 2.2   | 12.5  | 87.0              | 13.2        |
| Portugal ...                   | (53%)     | 1960 | 83.4                | 7.0   | 1.0  | 1.3   | 2.8   | 12.6  | 77.1              | 11.0        |

*Females*

|                             |     | Year | Under<br>1<br>year† | 1-4   | 5-14 | 15-24 | 25-44 | 45-64 | 65<br>and<br>over | All<br>Ages |
|-----------------------------|-----|------|---------------------|-------|------|-------|-------|-------|-------------------|-------------|
| England and Wales ...       |     | 1962 | 18.7                | 0.8   | 0.3  | 0.4   | 1.3   | 7.4   | 60.1              | 11.3        |
| Federal German Republic ... |     | 1959 | 30.3                | 1.2   | 0.4  | 0.6   | 1.5   | 7.2   | 57.9              | 9.8         |
| Belgium ...                 |     | 1959 | 26.0                | 1.2   | 0.4  | 0.5   | 1.3   | 7.3   | 56.6              | 10.5        |
| Switzerland ...             |     | 1959 | 18.5                | 1.2   | 0.4  | 0.5   | 1.1   | 6.8   | 56.1              | 8.9         |
| Sweden ...                  |     | 1959 | 13.8                | 0.7   | 0.3  | 0.4   | 1.2   | 6.0   | 55.0              | 9.0         |
| Netherlands ...             |     | 1960 | 14.5                | 1.0   | 0.3  | 0.4   | 1.0   | 5.8   | 52.6              | 7.0         |
| Austria ...                 |     | 1959 | 35.9                | 1.4   | 0.5  | 0.7   | 1.6   | 7.7   | 59.5              | 11.4        |
| France ...                  |     | 1960 | 20.0                | 1.1   | 0.3  | 0.6   | 1.4   | 7.1   | 55.8              | 10.8        |
| Denmark ...                 |     | 1959 | 19.0                | 0.9   | 0.3  | 0.4   | 1.4   | 6.9   | 56.9              | 8.8         |
| Norway ...                  |     | 1959 | 16.0                | 0.8   | 0.4  | 0.4   | 1.1   | 5.6   | 54.3              | 8.5         |
| Italy ...                   | (p) | 1959 | 41.7                | 10.6† | 0.5  | 0.6   | 1.4   | 6.7   | 53.5              | 8.3         |
| Irish Republic ...          |     | 1961 | 27.4                | 1.3   | 0.4  | 0.5   | 1.7   | 8.4   | 72.7              | 11.4        |
| Portugal ...                |     | 1960 | 71.2                | 6.4   | 0.8  | 0.8   | 1.7   | 6.9   | 64.7              | 9.9         |

\* This is the percentage engaged in agriculture.

† Rates per thousand live births.

‡ This figure is for age group 0-4 years.

*Morbidity in Older Men*

Statistics made available by the Ministry of Pensions and National Insurance show that since 1954 there has been an increase in the proportion of the male population aged 60-64 incapacitated for work. This increase is not observed at ages 55-59 or younger ages. There has been in addition an increase in sickness absence longer than three months in this age group. The relevant figures are set out in Table A.

An examination of the information on cause of absence shows that the increase in sickness is spread over many different causes though about 40 per

cent. of the total increase is ascribed to bronchitis and arteriosclerotic heart disease. The mortality in the 60-64 age group during the period in question has shown no variations which can be correlated with the increase in sickness incapacity. The explanation of the different trends is not apparent from the information at present available.

TABLE A

*Men aged 60-64 and 55-59 incapacitated at a date in each year from 1954 to 1961, expressed as a proportion of the population at risk at the same date in the relevant age group(\*)*

|                |     | Number per hundred men |                                     |                       |                                     |
|----------------|-----|------------------------|-------------------------------------|-----------------------|-------------------------------------|
|                |     | Age 60-64              |                                     | Age 55-59             |                                     |
|                |     | All men incapacitated  | Men incapacitated for over 3 months | All men incapacitated | Men incapacitated for over 3 months |
| 5th June, 1954 | ... | 11.6                   | 8.6                                 | 7.9 *                 | 5.3                                 |
| 4th June, 1955 | ... | 12.0                   | 8.7                                 | 8.0                   | 5.1                                 |
| 2nd June, 1956 | ... | 12.0                   | 8.8                                 | 7.8                   | 5.0                                 |
| 1st June, 1957 | ... | 11.9                   | 8.7                                 | 7.8                   | 4.9                                 |
| 31st May, 1958 | ... | 12.6                   | 9.3                                 | 7.5                   | 4.7                                 |
| 30th May, 1959 | ... | 12.8                   | 9.7                                 | 7.5                   | 4.9                                 |
| 4th June, 1960 | ... | 12.7                   | 9.4                                 | 7.4                   | 4.6                                 |
| 3rd June, 1961 | ... | 12.7                   | 9.4                                 | 7.4                   | 4.6                                 |

\* Estimated from samples of persons recording incapacity for work and of persons insured for sickness benefit.

## II GENERAL EPIDEMIOLOGY

### *Measles*

*Corrected Notifications, Deaths and Fatality Ratios since notifications began*

| Year | Corrected* notifications | Deaths | Fatality Ratio† | Year | Corrected* notifications | Deaths | Fatality Ratio† |
|------|--------------------------|--------|-----------------|------|--------------------------|--------|-----------------|
| 1940 | 409,521†                 | 857    | 0·21            | 1952 | 389,502                  | 141    | 0·04            |
| 1941 | 409,715†                 | 1,145  | 0·28            | 1953 | 545,050                  | 242    | 0·04            |
| 1942 | 286,341†                 | 458    | 0·16            | 1954 | 146,995                  | 45     | 0·03            |
| 1943 | 376,104†                 | 773    | 0·21            | 1955 | 693,803                  | 174    | 0·03            |
| 1944 | 158,479                  | 243    | 0·15            | 1956 | 160,556                  | 28     | 0·02            |
| 1945 | 446,796                  | 729    | 0·16            | 1957 | 633,678                  | 94     | 0·01            |
| 1946 | 160,402                  | 204    | 0·13            | 1958 | 259,308                  | 49     | 0·02            |
| 1947 | 393,787                  | 644    | 0·16            | 1959 | 539,524                  | 98     | 0·02            |
| 1948 | 399,606                  | 327    | 0·08            | 1960 | 159,364                  | 31     | 0·02            |
| 1949 | 385,935                  | 307    | 0·08            | 1961 | 763,465                  | 152    | 0·02            |
| 1950 | 367,725                  | 221    | 0·06            | 1962 | 184,895                  | 39     | 0·02            |
| 1951 | 616,192                  | 317    | 0·05            |      |                          |        |                 |

\* Including original notifications by Port Health Districts.

† Only partly corrected.

‡ Deaths per 100 notifications. The deaths from 1951 to 1957 included those occurring more than one year after onset of measles. Since 1958 these are excluded.

The epidemic incidence of measles continues to show biennial rhythm. 1962 was a year of low incidence but notifications were rising steeply in the last quarter, building up to a new peak which is likely in the first half of 1963. The mortality due to this disease remains low.

### *Scarlet Fever*

There was a further drop in corrected notifications in 1962, the total number of cases of scarlet fever being 15,306, 4,678 fewer than in 1961. There were only 2 deaths.

The disease continues to be mild and its incidence continues to show a winter peak.

*Corrected Scarlet Fever Notifications and Deaths in England and Wales  
1943-1962*

| Year | Corrected* notifications | Deaths | Fatality Ratio† | Year | Corrected* notifications | Deaths | Fatality Ratio† |
|------|--------------------------|--------|-----------------|------|--------------------------|--------|-----------------|
| 1943 | 116,034                  | 134    | 0·12            | 1953 | 61,180                   | 4      | 0·01            |
| 1944 | 92,671                   | 107    | 0·12            | 1954 | 43,026                   | 4      | 0·01            |
| 1945 | 73,687                   | 84     | 0·11            | 1955 | 32,619                   | 2      | 0·01            |
| 1946 | 56,730                   | 43     | 0·08            | 1956 | 33,103                   | 1      | 0·00            |
| 1947 | 58,047                   | 42     | 0·07            | 1957 | 29,547                   | 3      | 0·01            |
| 1948 | 74,831                   | 37     | 0·05            | 1958 | 38,853                   | 4      | 0·01            |
| 1949 | 70,667                   | 27     | 0·04            | 1959 | 47,919                   | 1      | 0·00            |
| 1950 | 65,889                   | 33     | 0·05            | 1960 | 32,170                   | —      | —               |
| 1951 | 48,744                   | 15     | 0·03            | 1961 | 19,984                   | 3      | 0·01            |
| 1952 | 67,261                   | 8      | 0·01            | 1962 | 15,306                   | 2      | 0·01            |

\* Including original notifications in Port Health Districts.

† Deaths per 100 notifications. The deaths from 1951 to 1957 included those occurring within the interval between the onset of the disease and death exceeded one year. These have been excluded in subsequent years.

## Meningococcal Infection

1. Corrected notifications and deaths, 1953-1962 including original notifications from Port Health Districts.

| Year        | No. of Notifications | No. of Deaths | Fatality Ratio* |
|-------------|----------------------|---------------|-----------------|
| 1953 ... .. | 1,354                | 291           | 21.5            |
| 1954 ... .. | 1,246                | 259           | 20.8            |
| 1955 ... .. | 1,126                | 206           | 18.2            |
| 1956 ... .. | 1,168                | 189           | 16.2            |
| 1957 ... .. | 1,016                | 184           | 18.1            |
| 1958 ... .. | 836                  | 145           | 17.3            |
| 1959 ... .. | 746                  | 159           | 21.3            |
| 1960 ... .. | 632                  | 95            | 15.0            |
| 1961 ... .. | 651                  | 130           | 20.0            |
| 1962 ... .. | 576                  | 138           | 24.0            |

\* Deaths per 100 notifications.

The number of corrected notifications in 1962 showed a fall in the number of cases notified as compared with 1961, but the number of deaths rose and the fatality ratio was the highest in the last ten years.

2. Notification rates by ages per 100,000 population (excluding Port Health Districts) :—

| Year        | All ages | 0—   | 5—  | 15 years and over |
|-------------|----------|------|-----|-------------------|
| 1953 ... .. | 3.1      | 24.9 | 4.3 | 0.7               |
| 1954 ... .. | 2.8      | 23.5 | 3.7 | 0.6               |
| 1955 ... .. | 2.5      | 21.2 | 3.4 | 0.6               |
| 1956 ... .. | 2.6      | 20.2 | 3.5 | 0.8               |
| 1957 ... .. | 2.3      | 19.4 | 2.7 | 0.5               |
| 1958 ... .. | 1.9      | 16.1 | 1.8 | 0.5               |
| 1959 ... .. | 1.6      | 13.0 | 2.3 | 0.4               |
| 1960 ... .. | 1.4      | 10.5 | 1.9 | 0.4               |
| 1961 ... .. | 1.4      | 11.2 | 1.7 | 0.3               |
| 1962 ... .. | 1.2      | 9.0  | 1.4 | 0.4               |

Total notifications by age expressed as percentages of all corrected notifications were:—

0-4 years, 59.5: 5-14 years, 16.5.

15-24 years, 10.6: 25 years and over, 13.4.

3. Fatality ratios (deaths per 100 notifications) in several age groups :—

|                          |      |
|--------------------------|------|
| All ages ... ..          | 24.0 |
| 0-4 years ... ..         | 29.5 |
| 5-14 years ... ..        | 5.3  |
| 15 years and over ... .. | 23.2 |

The incidence of meningococcal infections continues to be highest in children under 5 years of age and the fatality ratio remains highest in that age group. This disease now causes substantially more deaths in early childhood than poliomyelitis, despite the small annual total of cases.

| Year | Corrected notifications* |                   |
|------|--------------------------|-------------------|
|      | Typhoid Fever            | Paratyphoid Fever |
| 1953 | 101                      | 353               |
| 1954 | 122                      | 548               |
| 1955 | 193                      | 876               |
| 1956 | 136                      | 440               |
| 1957 | 125                      | 310               |
| 1958 | 150                      | 200               |
| 1959 | 123                      | 379               |
| 1960 | 90                       | 241               |
| 1961 | 97                       | 254               |
| 1962 | 130                      | 126               |

\* Including original notifications from Port Health Districts.

### *Typhoid Fever*

The corrected notifications for typhoid fever for 1962 numbered 130 and four deaths were attributed to this disease. Both figures are higher than those for 1961.

Half the patients contracted their infection abroad, most while on holiday. A conspicuous example of such holiday risk was the identification of 15 cases and 6 excretors of phage Type D1 organisms in people who had stayed during February and March in Tenerife. Another incident affected 11 out of 17 of a coach party touring Spain, from a number of whom phage Type A organisms were isolated and phage Type C1 was detected in 3 out of a coach party of 33 who had toured in Italy. These incidents reinforce the advice contained in the Notice to Travellers that those intending to travel outside this country should be vaccinated against typhoid and paratyphoid fevers with a good vaccine.

Spread of typhoid fever in this country was rare in 1962 but multiple cases in the same household came to light on three occasions and cases also occurred in a mental hospital where known excretors were among the patients. The risk from the chronic typhoid carrier was illustrated in both these groups; in one household where a case occurred, two previous cases had been diagnosed, one in 1946 and a second in 1957.

### *Paratyphoid Fever*

The 126 cases of paratyphoid fever notified in 1962 are markedly fewer than have been reported in recent years. Three deaths were attributed to this disease.

Comparatively few of the paratyphoid cases contracted their infection abroad, although an exception was an outbreak affecting 9 members of the crew of an oil tanker. Phage type Taunton was responsible for this. At Bangor in North Wales phage Type 1 var. 6 caused an outbreak in a maternity hospital. This organism had been implicated in an outbreak in N. Wales in 1959 (Noticed in the Report of the Chief Medical Officer for 1959). Fifteen other outbreaks affected households, and were spread to household contacts.

## Leprosy

Arrangements for the treatment and welfare of leprosy patients, notified under the Public Health (Leprosy) Regulations, 1951, continued satisfactorily in 1962. Early diagnosis and modern therapeutic methods have resulted in an outcome for the patient much more favourable than in the past. By the end of the year the Leprosy Register showed 250 cases left in England and Wales, of whom only 87 were classified as having active disease.

## Poliomyelitis

### 1. Acute Poliomyelitis (including polioencephalitis).

#### *Corrected notifications and deaths England and Wales 1953-1962*

|                      | 1953  | 1954  | 1955  | 1956  | 1957  | 1958  | 1959  | 1960 | 1961 | 1962 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|
| (a) Paralytic ...    | 2,976 | 1,319 | 3,712 | 1,717 | 3,177 | 1,419 | 739   | 257  | 707  | 212  |
| (b) Non-paralytic    | 1,571 | 641   | 2,619 | 1,483 | 1,667 | 575   | 289   | 121  | 169  | 59   |
| Total notifications† | 4,547 | 1,960 | 6,331 | 3,200 | 4,844 | 1,994 | 1,028 | 378  | 876  | 271  |
| Total deaths*        | 338   | 134   | 270   | 137   | 255   | 154   | 87    | 46   | 79   | 45   |

\* Including deaths from late effects of poliomyelitis which, in years 1953-1962 numbered 18, 22, 29, 23, 29, 25, 21, 23, 20 and 27 respectively.

† Including original notifications from Port Health Districts.

The incidence of acute poliomyelitis has been remarkably low in 1962; the total number of notifications is lower than in any year since 1918. The incidence was 0.6 per 100,000 of the population and the fatality ratio, excluding deaths due to late effects of the disease, was 6.6.

The pattern shown by weekly uncorrected notifications was of an unusually small seasonal rise. Notifications reached double figures only during the period from the twenty-fourth to thirty-third week inclusive, 10th June to 18th August and the zenith was the weekly total of 26 notifications in the 26th week of the year, 24th to 30th June, when there was a local prevalence in Monmouthshire.

Eighteen counties in England and Wales did not report any case throughout the year and the only counties where original notifications reached double figures were Yorkshire (58 notifications), Monmouthshire (42 notifications), Lancashire (27 notifications), London (26 notifications), Durham (20 notifications), Middlesex (11 notifications) and Essex (10 notifications); a distribution much in accord with population.

One substantial outbreak of acute poliomyelitis occurred during the year. It extended throughout June and the first half of July and affected the county of Monmouthshire, especially the urban districts of Ebbw Vale, and Nantyglo and Blaina. A mass vaccination campaign using trivalent oral Sabin type vaccine was organized for the population of the Ebbw Vale, Tredegar, Rhymney, Bedwelty and Nantyglo and Blaina urban districts, a total of 100,000 persons, and of these an estimated 72,000 received the single dose offered during the last week in June. The measure is considered to have helped in controlling the outbreak.

Isolations by the Public Health Laboratory Service showed some change in the distribution of poliovirus in the population in comparison with that of previous years. Type 1 still predominated, being the type isolated in about half of all identifications and the type found in 70 per cent. of isolations from cases. Type 3 was next in frequency. It was almost as common in isolations from excretors as was Type 1. Type 2 was least often found, although even it accounted for almost a quarter of isolations from excretors. The isolations of Types 2 and 3 virus were concentrated in the latter half of the year.

## 2. Regional incidence per 100,000 population (corrected notifications).

| Standard Regions          | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|---------------------------|------|------|------|------|------|------|------|------|------|------|
| Northern ... ..           | 6    | 9    | 5    | 10   | 6    | 4    | 2    | 0.2  | 1.1  | 1.1  |
| East and West<br>Ridings. | 8    | 5    | 17   | 4    | 6    | 10   | 1    | 0.5  | 4.3  | 1.1  |
| North Western ...         | 6    | 3    | 6    | 13   | 4    | 6    | 2    | 0.6  | 4.9  | 0.4  |
| North Midland ...         | 10   | 4    | 11   | 4    | 13   | 5    | 1    | 0.9  | 0.9  | 0.4  |
| Midland ... ..            | 10   | 3    | 7    | 3    | 13   | 3    | 1    | 0.9  | 1.8  | 0.5  |
| Southern ... ..           | 17   | 3    | 13   | 6    | 10   | 6    | 5    | 0.3  | 0.6  | 0.3  |
| South Western ...         | 15   | 7    | 17   | 4    | 16   | 4    | 2    | 1.2  | 0.7  | 0.2  |
| Eastern ... ..            | 12   | 6    | 19   | 5    | 18   | 4    | 3    | 0.6  | 0.9  | 0.4  |
| London and S.E....        | 12   | 4    | 24   | 9    | 13   | 3    | 3    | 1.3  | 0.7  | 0.4  |
| England ... ..            | 10   | 5    | 15   | 7    | 11   | 5    | 2    | 0.8  | 1.8  | 0.5  |
| Wales ... ..              | 9    | 3    | 10   | 4    | 9    | 1    | 1    | 0.8  | 2.6  | 1.8  |
| England and Wales         | 10   | 4    | 14   | 7    | 11   | 4    | 2    | 0.8  | 1.9  | 0.6  |

Incidence for the years 1953 to 1959 has been expressed to the nearest whole numbers.

## 3. Proportion of poliomyelitis in certain age groups, 1962 :

| Age groups               | Percentage |
|--------------------------|------------|
| 0-4 years ... ..         | 41.5       |
| 5-14 years ... ..        | 28.9       |
| 15 years and over ... .. | 29.6       |

## 4. Incidence per 100,000 by sex and age groups, 1962 :

|                       | Paralytic cases per 100,000 |         |                              | Non-paralytic cases per 100,000 |         |                              |
|-----------------------|-----------------------------|---------|------------------------------|---------------------------------|---------|------------------------------|
|                       | Males                       | Females | Ratio of<br>Males to Females | Males                           | Females | Ratio of<br>Males to Females |
| 0-4 years ... ..      | 2.4                         | 2.7     | 0.9                          | 0.4                             | 0.5     | 0.8                          |
| 5-9 years ... ..      | 1.3                         | 1.2     | 1.1                          | 0.9                             | 0.5     | 1.8                          |
| 10-14 years ... ..    | 0.2                         | 0.3     | 0.7                          | 0.2                             | —       | —                            |
| 15-24 years ... ..    | 0.4                         | 0.2     | 2.0                          | 0.1                             | 0.2     | 0.5                          |
| 25 years and over ... | 0.2                         | 0.1     | 2.0                          | 0.02                            | 0.03    | 0.7                          |
| All ages ... ..       | 0.5                         | 0.4     | 1.2                          | 0.1                             | 0.1     | 1.0                          |

5. Poliomyelitis: deaths in 1962 in various age groups (excluding deaths from late effects) and death rates per million living.

|          |     |     |     | <i>No. of deaths</i> | <i>Rate per million living</i> |
|----------|-----|-----|-----|----------------------|--------------------------------|
| All ages | ... | ... | ... | 18                   | 0.39                           |
| 0—       | ... | ... | ... | 3                    | 0.79                           |
| 5—       | ... | ... | ... | 1                    | 0.30                           |
| 10—      | ... | ... | ... | —                    | —                              |
| 15—      | ... | ... | ... | 2                    | 0.57                           |
| 20—      | ... | ... | ... | —                    | —                              |
| 25—      | ... | ... | ... | 7                    | 1.19                           |
| 35—      | ... | ... | ... | 5                    | 0.79                           |
| 45—      | ... | ... | ... | —                    | —                              |
| 55—      | ... | ... | ... | —                    | —                              |
| 65—      | ... | ... | ... | —                    | —                              |
| 75—      | ... | ... | ... | —                    | —                              |

#### *Vaccination against poliomyelitis*

On 24th October, 1961, the Minister announced in Parliament that he intended, in accordance with the recommendations of the Joint Committee on Poliomyelitis Vaccine, to make live oral vaccine (Sabin strains) available for routine vaccination against poliomyelitis as an alternative to the inactivated vaccine (Salk vaccine) which had hitherto been used. On 1st February, 1962, this policy was given effect and the oral vaccine was made available for routine immunisation of persons in the priority groups. At the same time arrangements were made to investigate any patient showing neurological lesions after receiving this vaccine so that any misgivings concerning its safety could be allayed.

The investigation of patients showing neurological lesions after polio-vaccine was based on the immediate reporting to the public Health Laboratory Service by Medical Officers of Health of all cases of poliomyelitis notified to them. The report contained full details of the polio-vaccination history of the patient and information about household contacts who had received oral vaccine within 28 days before onset of symptoms. On receipt of this report, the doctor in clinical charge of the case was sent a questionnaire for clinical particulars and virological investigations, and where the latter details were not available to the clinician further enquiries were made at the appropriate laboratory. A similar investigation was made into oral vaccination in household contacts between 29 and 60 days before onset in a sample group of paralytic poliomyelitis cases to find out if any number of cases were occurring at this time interval.

At first rather stringent requirements had to be laid down for distributing and storing the live vaccine so as to preserve it from deterioration but improvement in the stability of the vaccine quickly allowed these to be modified.

Later in the year reports of temporary restriction on the use of live attenuated virus vaccine in the United States of America and in Canada were received but the close surveillance of all cases in England and Wales enabled an assurance to be given by the Joint Committee on Poliomyelitis Vaccine that there was nothing in our experience to require restriction of the use of the oral vaccine in this country and it continued in use.

By the end of 1961, 16·7 million persons in England and Wales had received at least two injections of polio-vaccines, and 12·8 million of that number had received three injections and 2·4 million had received four. An additional 91,000 had been given one injection. During 1962, the use of oral polio-vaccine as well as the continued use of Salk complicated the picture. By the end of the year 0·9 million persons had received three doses of oral vaccine and at least a further 150,000 had received one or two doses. By this time the number of persons who had received at least two injections of Salk had increased to 17·2 million and 13·7 million of those had received three injections and 2·5 million had received four. Also a number of persons received reinforcement of the immunisation obtained from Salk by a further dose of oral vaccine. In this way, 1·4 million were reinforced after two doses of Salk and 0·7 million after three doses.

#### *Death—Tetanus, 1952–1961*

##### *Tetanus*

| Year                                                      | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 |
|-----------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Deaths assigned to Tetanus ...                            | 63   | 61   | 37   | 33   | 37   | 28   | 20   | 25   | 18   | 24   |
| Deaths complicated by Tetanus assigned to the injury* ... | —    | —    | 24   | 15   | 15   | 18   | 21   | 13   | 14   | 17   |
| Total ...                                                 | 63   | 61   | 61   | 48   | 52   | 46   | 41   | 38   | 32   | 41   |

\* Prior to 1954 all deaths were assigned to tetanus.

The downward trend in the total number of deaths attributed to tetanus which was seen from 1956 to 1960 has not been maintained in 1961.

Until protection by active immunisation is general, the clinical problem of when and when not to use anti-tetanic serum to obtain passive immunity will persist. It is not made easier by the uncertainty about the true incidence of tetanus of which mention was made in the Report for 1961, nor by the proportion of cases which follow minor inapparent injury. This matter is now engaging the attention of the Joint Committee on Immunisation and Vaccination.

Since the introduction of the Schedules of immunisation now recommended, all local health authorities have included vaccination against tetanus among the arrangements they have made under Section 26 of the National Health Service Act, 1946.

# Whooping Cough

## Corrected Notifications, Deaths and Fatality ratios 1953-1962

| Year        | Corrected notifications |              | Deaths   |              |                |            |             | Fatality Ratio* |
|-------------|-------------------------|--------------|----------|--------------|----------------|------------|-------------|-----------------|
|             | All ages                | Under 1 year | All ages | Under 1 year | Under 3 months | 3-5 months | 6-11 months |                 |
| 1953 ... .. | 157,835                 | 13,978       | 243      | 167          | 54             | 54         | 59          | 0.15            |
| 1954 ... .. | 105,904                 | 9,438        | 139      | 95           | 40             | 29         | 26          | 0.13            |
| 1955 ... .. | 79,101                  | 7,093        | 87       | 60           | 20             | 23         | 17          | 0.11            |
| 1956 ... .. | 92,407                  | 8,466        | 92       | 63           | 21             | 21         | 21          | 0.10            |
| 1957 ... .. | 85,017                  | 7,604        | 87       | 68           | 22             | 23         | 23          | 0.10            |
| 1958 ... .. | 33,400                  | 3,306        | 27       | 18           | 8              | 7          | 3           | 0.08            |
| 1959 ... .. | 33,252                  | 3,319        | 25       | 16           | 6              | 5          | 5           | 0.08            |
| 1960 ... .. | 58,030                  | 5,869        | 37       | 26           | 13             | 8          | 5           | 0.06            |
| 1961 ... .. | 24,469                  | 2,436        | 27       | 19           | 8              | 8          | 3           | 0.11            |
| 1962 ... .. | 8,347                   | 1,026        | 24       | 18           | —              | —          | —           | 0.29            |

\* Deaths per 100 notifications. Deaths from 1953 to 1957 included those occurring more than one year after the onset of whooping cough. Since 1958 these have been excluded.

The number of corrected notifications (8,347) in 1962 was the lowest for any year since notification began. The incidence of whooping cough has been declining in an irregular manner for a number of years and, since 1960, there has been a particularly sharp fall in notifications. This recent fall has been less marked among children in the first year of life than at later ages.

The number of deaths remained small, but the reduction since 1960 has been much less than might have been expected from the drop in notifications. In 1961 and again in 1962 there was a sharp rise in the fatality ratio. This rise was proportionately of the same order among children in the first year of life as among older persons. The fatality ratio in the first year of life remained about twenty times as great as at later ages.

The explanation for the recent increase in the fatality ratio is obscure. It would be unjustifiable to conclude that these figures necessarily indicate an increase in the severity of the disease. An alternative explanation may lie in some recent change in the completeness of notification. It is possible that many mild cases, perhaps modified by previous immunisation, are now less easily recognized and so are not notified. The general decline in the incidence of clinically recognizable whooping cough would be consistent with the known effectiveness of immunisation in protecting against this disease.

All local health authorities now provide vaccination against whooping cough. Returns made to the Department show that the number of children under 15 years of age who had completed a primary course (normally three injections of pertussis vaccine singly or in combination) during 1962 was 578,474, compared to 690,070 in 1961 and 626,401 in 1960.

## Malaria

| Source            | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|-------------------|------|------|------|------|------|------|------|------|------|------|
| Contracted abroad | 559  | 424  | 264  | 182  | 136  | 113  | 83   | 82   | 88   | 128  |
| Indigenous ...    | 3    | —    | —    | —    | 1    | —    | —    | —    | —    | —    |
| Induced ... ..    | —    | —    | —    | —    | 109  | 85   | 69   | 81   | 36   | 45   |

During the year, 128 cases of malaria were notified.

From the records of the Public Health Laboratory Service it is known that more than half the cases contracted abroad were infected in the African continent, over a fifth in the Indian subcontinent and the remainder in South East Asia, the Pacific Islands and the Near East.

In 1962, 45 patients had malaria induced from material provided by the Malaria Reference Laboratory at Horton Hospital, Epsom.

### *Anthrax*

Eight notifications of Anthrax were confirmed during 1962 under the Public Health (Infectious Disease) Amendment Regulations, 1960. In six of these bacteriological confirmation was obtained. One patient died.

Two cases were in persons concerned with the slaughter of animals; investigations following one of these brought to light, at a skin and hide factory, an infected hide originating from the knacker's yard in which the infected person had worked. One other patient acquired his infection within the leather trade. Three cases were associated with the wool trade and two of these were in employees of the same firm.

Finally, two cases appeared to result from the handling of cargoes. One was in a docker who had been assisting in the unloading of lambswool. The other, which ended fatally, was in a Lascar seaman aboard a ship which had earlier carried a cargo of hide and skins. It will be noted that there were, this year, no reported cases which appeared to arise from the handling of raw bone meal fertilizer.

### *Smallpox*

Smallpox was introduced into this country during December, 1961, and January, 1962, by five travellers from Pakistan who developed variola major from which two of them died. There followed 62 indigenous cases—16 in England and 46 in Wales—and of these 24 died of smallpox. A special feature of the outbreak was the extent to which it involved the hospital services. No less than 41 of the indigenous cases occurred in persons who were hospital patients, either at the time the diagnosis was made or when infection was thought to have occurred, or were members of hospital staffs or visitors to wards involved.

The various aspects of this outbreak have been considered in some detail in a Report on Public Health and Medical Subjects No. 109 entitled Smallpox 1961-1962, published in July, 1963.

The first imported case to be detected, an adult male, arrived at London Airport on 25th December, 1961 and travelled to St. Pancras where he remained in lodgings until taken to hospital at midnight 27th/28th December. No secondary cases were directly associated with this importation. The second importation detected, also an adult male, arrived at London Airport on 19th December, and travelled to the West Bromwich area where he remained until admitted to hospital on 28th December. Only one secondary case was known to have been infected by this importation, a Medical Officer of Health who had examined him before his admission to hospital.

The third importation detected, though actually the first to enter the country, a girl of nine years of age, arrived in this country on 16th December,

and travelled to Bradford where she remained until admission to hospital on 23rd December, with a presumptive diagnosis of malaria, later confirmed by blood examination. She was not diagnosed as suffering from smallpox in life, as she had no focal rash, and she died in hospital on 30th December. There can be no doubt that she gave rise to 13 indigenous cases of smallpox in Bradford and West Yorkshire and, of these, five died of smallpox and one elderly male patient died from the condition for which he had been admitted to hospital having recovered from highly modified smallpox.

The fourth importation, an adult male, arrived at London Airport on 4th January, and travelled to Birmingham where he remained until 15th January, when he was admitted to hospital. No secondary cases arose from this source.

The fifth importation, another adult male, arrived at London Airport on 12th January, and travelled (via Birmingham) to Cardiff where he remained on the premises of a restaurant until his admission to hospital on 16th January. Although the connection with this source was not clearly shown, this must be regarded as the origin of a substantial outbreak which occurred in South Wales in two main waves between 9th February and 15th April, and involved 46 indigenous cases, of whom 19 died.

The great majority of indigenous patients were persons who had been, or who could retrospectively be, brought into line confidently with earlier cases. To explain the infection of five exceptions, one has to consider the possibility of their being infected by missed cases in the community. In four of these the possibility arises that infection was conveyed to them by some means from occupied smallpox hospitals situated within three-quarters of a mile of where the patients were either working or residing at the conjectured time of their infection.

Medical Officers of Health of the sanitary districts concerned relied for control of the outbreak upon the ascertainment of cases and their isolation in smallpox hospitals, the identification, vaccination and (where deemed necessary) the surveillance of contacts, and thorough concurrent and terminal disinfection. During the period of the outbreak 11 smallpox hospitals were opened and 97 patients were admitted to them.

The subject of vaccination is discussed elsewhere (page 44) but it is appropriate to refer to the vaccination state of the patients themselves at this point. There were 59 indigenous cases where the vaccinal state was known with some certainty. Amongst these there were a number of frail elderly ladies who had not been vaccinated for many years. The following table shows the fatal and non-fatal cases according to whether there had been any record of vaccination performed at any time on or prior to the sixth day before the onset of the disease.

|                                                                 | Died | Survived | Total | Fatality Rate |
|-----------------------------------------------------------------|------|----------|-------|---------------|
| Record of vaccination on or prior to sixth day before onset ... | 5*   | 29       | 34    | 15%           |
| No such record ...                                              | 16   | 9        | 25    | 64%           |
| Uncertain ...                                                   | 3    | —        | 3     | —             |
| Total ...                                                       | 24   | 38       | 62    | —             |

The five deaths shown at \* of the table all occurred in persons vaccinated 58 or more years before contracting the disease.

If, for statistical purposes the three uncertain cases which died are assumed to have been vaccinated, there is still a highly significant difference in favour of vaccination exerting an ameliorating effect on the disease in the circumstances described. This is the more impressive because of the unfavourable inclusion of the three uncertain cases. Studies of these vaccinal states also left little doubt that vaccination after exposure but carried out up to about a week prior to the onset of the disease itself had an attenuating effect on its course, and this contributes materially to the findings at the above table.

Further analysis of the vaccinal state in relation to the severity of illness brought to light the following facts. Of twenty-two patients who experienced fulminating or malignant attacks resulting in nineteen deaths, only six were known to have been vaccinated on or prior to six days before onset, and these were all elderly ladies, five of whom (referred to earlier) had been vaccinated solely in infancy. Of the forty patients experiencing less severe attacks, with five ensuing deaths, twenty-eight were known to have been vaccinated successfully on or at some time prior to six days before onset and none of these died.

During the period of the outbreak, the members of the Smallpox Panel, in England alone, were called upon by Medical Officers of Health to examine 370 patients in whom the diagnosis of smallpox was suspected but who did not subsequently prove to be so suffering. The Virus Laboratories of the Public Health Laboratory Service provided invaluable assistance in the difficult problem of diagnosing doubtful cases and, indeed, in all but three of the sixty-seven cases the diagnosis of smallpox was virologically confirmed. The three exceptions were all in patients who had died without the suspicion of smallpox having been aroused but who must, in the light of circumstantial evidence, be unquestionably considered as having suffered from that disease.

Perhaps the most important lesson to be derived from this experience is not a new one. A hospital pathologist, an obstetrician and a hospital cook, none of whom had been vaccinated before infection was acquired, all contracted smallpox and died therefrom; an unvaccinated nurse also developed the disease but in this case it was not fatal. It is essential that the staffs of hospitals, who may at any time be unsuspectingly brought into contact with smallpox, should be protected by successful vaccination carried out at the intervals recommended in Hospital Memorandum RHB(50)75.

#### Vaccination

As in past years a table follows showing vaccination declared to have been performed under Section 26 of the National Health Service Act, during the years 1953-1962. The data are provided in returns made by local health authorities.

| Year     | Number primarily vaccinated |               |                |                 |           | Number revaccinated |               |                |                 |           |
|----------|-----------------------------|---------------|----------------|-----------------|-----------|---------------------|---------------|----------------|-----------------|-----------|
|          | Under one year              | Age 1-4 years | Age 5-14 years | Age 15 and over | Total     | Under one year      | Age 1-4 years | Age 5-14 years | Age 15 and over | Total     |
| 1953 ... | 231,200                     | 63,962        | 76,212         | 102,992         | 474,366*  | 503                 | 6,106         | 40,443         | 186,559         | 233,609*  |
| 1954 ... | 234,587                     | 37,924        | 11,196         | 20,833          | 304,560   | 260                 | 2,831         | 11,820         | 58,960          | 73,871    |
| 1955 ... | 251,819                     | 36,156        | 10,690         | 29,351          | 309,016   | 359                 | 2,809         | 11,916         | 57,458          | 72,602    |
| 1956 ... | 263,939                     | 37,341        | 11,125         | 21,195          | 333,800   | 574                 | 2,937         | 10,340         | 58,531          | 72,132    |
| 1957 ... | 303,406                     | 51,906        | 25,766         | 35,189          | 424,637   | 826                 | 4,679         | 18,032         | 90,286          | 113,843   |
| 1958 ... | 327,063                     | 38,241        | 18,929         | 27,008          | 421,241   | 512                 | 3,143         | 13,569         | 75,570          | 92,794    |
| 1959 ... | 337,310                     | 47,831        | 14,248         | 23,433          | 422,822   | 679                 | 3,540         | 10,228         | 61,471          | 75,918    |
| 1960 ... | 312,331                     | 56,521        | 15,322         | 24,462          | 408,636   | 428                 | 3,379         | 10,965         | 66,618          | 81,430    |
| 1961 ... | 319,532                     | 82,852        | 21,188         | 30,322          | 452,894   | 437                 | 3,912         | 12,927         | 72,585          | 89,855    |
| 1962 ... | 409,195                     | 422,218       | 976,129        | 1,423,373       | 3,230,915 | 998                 | 70,223        | 613,699        | 2,373,354       | 3,058,274 |

\* In 1953 there were in addition 1,375 vaccinations or revaccinations which cannot be classified.

In the twelve months ended 30th June, 1962, there were 829,311 live births registered. Thus the primary vaccinations declared in the above table as having been performed on children under the age of one year, suggest an acceptance rate of 50 per cent. However, advice was issued during the latter part of 1962 (Circular 27/62) that primary vaccination should be offered during the second year of life and not as hitherto at 4-5 months of age, and the 1962 figures include 157,904 children who were vaccinated during their second year.

If children vaccinated under age 2 are included in the figures the acceptance rate during 1962 would be approximately 70 per cent. compared with 50 per cent., 48 per cent., 47 per cent. and 48 per cent. during 1958, 1959, 1960 and 1961 respectively. The increase during 1962 is accountable by the large number of children being vaccinated during the smallpox outbreak in the first half of 1962.

Figures for 1963 are likely to show a considerable reduction and will not be comparable with previous years because authorities who changed the age of vaccination at the end of 1962 from 4-5 months to 12-24 months will have a considerable break in their programmes.

The advice issued during the latter part of 1962 (Circular 27/62) that the safest time for primary vaccination may prove to be during the second year of life and not as was hitherto maintained at 4-5 months of age, is most likely to lead in future to a reduction in the acceptance rate for those under age of one year.

However the acceptance rate during the first *two* years of life together of children born in the twelve months ended 3th June, 1958, 1959, 1960, and 1961 were 48.5 per cent., 50.2 per cent., 48.6 per cent. and 59.9 per cent. respectively. The increased rate for the 1961 group is accountable by the larger numbers of these children being vaccinated in the second year of life during the smallpox outbreak in the first half of 1962. No doubt a not dissimilar percentage will eventually prove to apply to those children born in the twelve months ended the 30th June, 1962.

The situation during 1962 was outside normal experience because of the presence of smallpox in the country. The numbers of vaccinations recorded in the above table do not indicate by any means the full number of vaccinations and re-vaccinations performed during the year, for many older persons were vaccinated outside Local Health Authorities' arrangements.

The vaccination of identified contacts of smallpox cases is the responsibility of the Medical Officer of Health of the district using the powers given by Public Health (Smallpox Prevention) Regulations, 1917. When, in the presence of smallpox large scale vaccination is undertaken, whether this is inspired to protect a menaced population, or is a response to public demand, this is the responsibility of Local Health Authorities under Section 26 of the National Health Service Act; it may be performed in Local Health Authority clinics, or by general practitioners, who are encouraged to take part in Local Health Authority arrangements or who may elect to vaccinate as a part of their general services. Finally Industrial Medical Officers may vaccinate persons at their place of work. Public anxiety, not diminished by press, radio and television reports, led to a very great demand for vaccination during the first quarter of 1962. In areas where there was some reason to suppose that

the general population might be at risk, i.e. Bradford and the Rhondda, this public demand was not discouraged. In many other places where there was no probability of risk, pressure was so persistent that arrangements had to be made. Clearly, when large numbers of people are being vaccinated within short periods of time there is a danger that the contra-indications to vaccination will not always be brought to light in individual cases, as one would expect to happen if the patient were vaccinated at a less harrassing time by his personal medical adviser. It is also evident that only minimal records can be maintained in these circumstances. It is not possible directly to correlate the doses of vaccine issued with the numbers of vaccinations performed but it is reasonable to assume that from 1st January, to 31st May, 1962, some seven to ten million vaccinations or re-vaccinations were carried out in England and Wales.

### *Complications of vaccination*

In past annual reports observations have been made on the complications of vaccinations performed under Section 26 of the National Health Service Act 1946 and reported to the Ministry by Medical Officers of Health in accordance with Circular 62/48. These officially recognized complications are given under three main headings:—

- (a) *Generalized vaccinia* (including benign generalized vaccinia, eczema vaccinatum and vaccinia gangrenosa).
- (b) *Post vaccinal encephalomyelitis*
- (c) *Complications other than (a) or (b) which prove fatal.*

During the first 5 months of 1962, when the smallpox outbreak in England and Wales occurred, the numbers of vaccinations performed, as stated earlier, far exceeded normal experience. Special measures were taken to ensure that as far as possible all the complications arising from these vaccinations, whether performed under Section 26 arrangements or not, should be brought to notice at Ministry level. A request was therefore made to hospital authorities to arrange that reports upon cases occurring in, or treated in, hospitals should be sent direct to the Ministry. This appeal met with a considerable response and in some relevant instances it was possible to draw the attention of the Medical Officer of Health concerned to cases about which he had not been told although the patients were vaccinated under his authority's arrangements. The remaining group of complications followed vaccinations performed outside the Local Health Authority's arrangements, e.g. upon the members of hospital staffs or hospital patients and, in some areas, all older persons.

Photostat copies of death certificates on which smallpox vaccination or its complications are mentioned are forwarded by the General Register Office to the Ministry and these provide a further source of information. In each instance, if a report had not already been received the Medical Officer of Health was invited to investigate the circumstances, and this again led to further reports or revealed information which justified amendment to the certificate itself or to the cause to which death was assigned by the Registrar General.

Clinical reports are received direct by the Ministry from "practioners designated to assist Medical Officers of Health in the diagnosis of smallpox"

and these are an occasional source of information since general reactions to vaccination can readily be confused with smallpox. Another source proved fruitful. The Public Health Laboratory Service collect information concerning all cases in which the vaccinia virus was grown from vaccinia lesions other than primary sites of vaccination. By careful cross-checking, the last source brought a considerable number of further cases to light.

It will be appreciated that the complications tabulated in the ensuing report cannot be confidently correlated with the vaccinations and re-vaccinations shown in the Table on page 44 in an attempt to arrive at age specific fatality rates. Indeed no denominator can be provided for this purpose.

#### *Vaccinia by contact*

That vaccinia is an infectious condition is often overlooked. For example, towards the end of 1962 a professional boxer was admitted to an infectious disease hospital with a rash and, as a result of laboratory investigations, the illness was diagnosed as vaccinia. Enquiries revealed that another boxer from the same booth was receiving treatment for a similar condition; and, later, three other boxers who had associated professionally with the first two were found to be infected, as was the fiancée of one of them. It is thought that infection may have been transmitted by the boxing gloves or by the towels used.

More serious illustrations of the infectivity of this condition are to be seen in that class of case known as *eczema vaccinatum*. It is usual to avoid vaccinating eczematous subjects but, occasionally, they acquire infection by contact with a vaccinated person and a serious illness may develop. During 1962, 47 such cases were reported direct to the Ministry and at least 30 others were brought to light in other ways. Of these 7 died.

Amongst this group was a boy aged 15, not himself vaccinated, who contracted *eczema vaccinatum* by contact with a vaccinated child in his family. He was admitted to hospital and apparently infected two eczematous patients in beds on either side of him, and one of these became gravely ill. Table I shows these cases by age and sex.

*Table I.—Eczema Vaccination (Contact) England and Wales*

| Age       | Cases |        |       | Deaths |        |       |
|-----------|-------|--------|-------|--------|--------|-------|
|           | Male  | Female | Total | Male   | Female | Total |
| 0—        | 9     | 5      | 14    | 1      | 1      | 2     |
| 1—        | 8     | 3      | 11    | 1      | 1      | 2     |
| 2—        | 14    | 4      | 18    | 3      | —      | 3     |
| 5—        | 10    | 7      | 17    | —      | —      | —     |
| 15+       | 12    | 5      | 17    | —      | —      | —     |
| Total ... | 53    | 24     | 77    | 5      | 2      | 7     |

In addition to the above, there were five cases of vaccinia acquired by contact in which generalized vaccinia developed although the patients were not eczematous; and one case of post vaccinal encephalomyelitis was also reported following accidental vaccinia in an infant aged 8 months.

## Generalized Vaccinia

### Benign Generalized Vaccinia

There were in all 160 cases of benign generalized vaccinia reported to the Ministry. Of these 133 were reported by Medical Officers of Health in accordance with Circular 62/48. There was only one reported death and this was in an adult female who was also suffering at the time from an advanced form of cancer. The cases are presented by age and sex at Table II.

Table II.—Benign Generalized Vaccinia England and Wales

| Age       | Circular 62/48 Reports |        |       | Others |        |       |
|-----------|------------------------|--------|-------|--------|--------|-------|
|           | Male                   | Female | Total | Male   | Female | Total |
| 0— ...    | 12                     | 8      | 20    | 3      | 1      | 4     |
| 1— ...    | 1                      | 4      | 5     | —      | —      | —     |
| 2— ...    | 2                      | 4      | 6     | —      | —      | —     |
| 5— ...    | 14                     | 9      | 23    | —      | 3      | 3     |
| 15+ ...   | 29                     | 50     | 79    | 11     | 9      | 20    |
| Total ... | 58                     | 75     | 133   | 14     | 13     | 27    |

### Eczema Vaccinatum

There were thirty-four cases of *eczema vaccinatum* in vaccinated persons brought to light through official channels and of these four died. Of the total number twenty-eight were reported by Medical Officers of Health in accordance with Circular 62/48 and of these four died. These cases are presented by age and sex at Table III.

Table III.—Eczema Vaccinatum—England and Wales

| Age       | Circular 62/48 Report |        |      | Others |        |      | Deaths |        |      |
|-----------|-----------------------|--------|------|--------|--------|------|--------|--------|------|
|           | Male                  | Female | Both | Male   | Female | Both | Male   | Female | Both |
| 0— ...    | 3                     | 1      | 4    | —      | 1      | 1    | 1      | —      | 1    |
| 1— ...    | —                     | 3      | 3    | 1      | —      | 1    | —      | —      | —    |
| 2— ...    | 3                     | 2      | 5    | —      | —      | —    | —      | —      | —    |
| 5— ...    | 3                     | —      | 3    | —      | —      | —    | —      | —      | —    |
| 15+ ...   | 9                     | 4      | 13   | 2      | 2      | 4    | 2      | 1      | 3    |
| Total ... | 18                    | 10     | 28   | 3      | 3      | 6    | 3      | 1      | 4    |

A series of forty-three cases has come to light through a private study, and, although it is not possible to identify all individuals it seems unlikely that these are included in the above total.

It is clear from a number of reports received in this group that, where there is a history of eczema, caution is as necessary as if the eczematous lesions were present at the time when vaccination was contemplated.

### Vaccinia Gangrenosa

This condition, also known as *chronic progressive vaccinia*, is one in which the primary vaccination lesion fails to heal, becomes necrotic and

thereafter increases in size. Similar lesions appear elsewhere on the body from which vaccinia virus can be recovered. After weeks or months death frequently occurs. In these patients there is a tendency to show lowered levels of gamma globulin in the blood and evidence of a deficient antibody response.

During 1962 there were four cases of this condition reported to the Ministry. One of these was referred to in the Annual Report for 1961 since, although death occurred in 1962, it followed a vaccination performed during the previous year. Of the remainder, a fatal case occurred in a boy vaccinated at the age of 4 months; his disease followed the described pattern and he died three months later. At no time was vaccinal antibody demonstrated in his blood and he revealed an abnormally low gamma globulin level. Another case was in a 32 year-old man who was vaccinated for the first time in 1962 because he wished to travel abroad. The primary site of vaccination became necrotic, the ulcer spread and generalized vaccinal lesions appeared on the trunk and limbs. The clinical condition did not progress to the extent earlier described. This case was treated with anti-vaccinal gamma globulin and with N-Methylizatin betathiosemicarbazone; the patient recovered (Daly and Jackson, 1962).

The last case was in a male child aged 5 months who was an eczematous subject and who suffered from asthma. At the site of vaccination the primary lesion spread to involve a large gangrenous area over the left deltoid with satellite vesicles. The lesion was maximal on the tenth day and slowly healed after the exhibition of anti-vaccinal gamma globulin and penicillin. There were no similar lesions elsewhere on the body and, curiously, the eczematous areas were not invaded by the satellite vesicles described; the patient recovered.

#### *Post Vaccinal Encephalomyelitis*

In all there were sixty reported cases of post vaccinal encephalomyelitis, of which five ended fatally. Medical Officers of Health reported forty-eight cases and four of these were fatal.

The cases are presented by age and sex at Table IV.

*Table IV.—Post Vaccinal Encephalomyelitis—England and Wales*

| Age          | Circular 62/48 Report |        |      | Others |        |      | Deaths |        |      |
|--------------|-----------------------|--------|------|--------|--------|------|--------|--------|------|
|              | Male                  | Female | Both | Male   | Female | Both | Male   | Female | Both |
| 0- ... ..    | 2                     | 3      | 5    | —      | —      | —    | 1      | —      | 1    |
| 1- ... ..    | —                     | 1      | 1    | —      | —      | —    | —      | —      | —    |
| 2- ... ..    | 2                     | 3      | 5    | —      | —      | —    | —      | —      | —    |
| 5- ... ..    | 4                     | 4      | 8    | —      | 2      | 2    | —      | 1      | 1    |
| 15+ ... ..   | 15                    | 14     | 29   | 2      | 8      | 10   | 2      | 1      | 3    |
| Total ... .. | 23                    | 25     | 48   | 2      | 10     | 12   | 3      | 2      | 5    |

It will be noted how the emphasis has shifted away from infancy in a year when many primary vaccinations were performed at later ages. The

first death occurred in a male child aged 8 months. The child became ill ten days after vaccination with projectile vomiting and obvious general malaise. The next day, on admission to hospital there was obvious bronchitis but no other abnormal signs. A day later he had a right-sided convulsion and developed torsion movements. There were subsequent convulsions and he died early the next morning. On post-mortem examination the only abnormal findings reported were that the liver was very pale, both kidneys were congested, and both lungs showed considerable areas of atelectasis and changes consistent with that of broncho-pneumonia. Attempts to isolate vaccinia virus from cerebral cortex, midbrain, pons, cervical cord, heart, lung, liver and spleen were all unsuccessful. Death was recorded as being due to bilateral broncho-pneumonia and atelectasis. The consultant paediatrician was of the opinion that the child had suffered from vaccinal encephalitis and expert opinion found the histopathology to be consistent with encephalopathy following vaccination.

The second death was in a female child aged 7 years. Six days after successful vaccination she began vomiting copiously and three days later, after severe headache, she became semi-comatose. She died in hospital thirteen days after vaccination. At post mortem examination there was evidence of purulent bronchitis with marked congestion of the lower lobes of the lungs, a few petechiae over the heart surface and oedema and hyperaemia of the brain. Histological examination of brain tissues revealed evidence of lesions suggesting the initial form of post-vaccinal encephalitis.

The next death was in a boy aged 15 who had for five years suffered from a chronic kidney condition and who was on continuous maintenance doses of cortico-steroids. Ten days after vaccination he developed changes of sensation in his left hand and some two days later collapsed with general paraesthesiae, pyrexia, retention of urine, weakness and restlessness. He died eight days after the onset of his illness. It should be noted that at the time of vaccination he was in excellent general health and had no nephrotic symptoms. At post mortem examination there was evidence of encephalitis and the sections of the brain showed this to be of post-vaccinal type although the lesions were not extensive.

The remaining two deaths were in adults and occurred in Wales. The first of these was in a man aged 49 whose illness began nineteen days after vaccination. He died five days later and death was recorded as being due to cardio-respiratory failure, encephalitis and recent vaccination against smallpox. However it is recorded that on histological examination no encephalitic lesions were found on brain section. The second death was in a female aged 59 who became ill fourteen days after re-vaccination. She died three days later. During her illness, she had clinical signs of encephalitis and at post mortem examination histological specimens confirmed this diagnosis.

#### *Associated Deaths*

There were seven deaths reported during 1962 where the certifying doctor considered there was some degree of association with prior vaccination against smallpox but where the diagnosis was neither generalized vaccinia nor post-vaccinal encephalomyelitis.

The first of these was in a female child, aged 7 years, who became ill eight days after vaccination with headache and vomiting. Three days later she was delirious and finally comatose. Following detailed pathological examination, her death was recorded as due to cerebral complications of smallpox but there was no histological evidence to support a diagnosis of encephalomyelitis. The second was in a child, aged 2½ years, who contracted tracheobronchitis at the time that her primary vaccination was developing. She died suddenly during the ninth night following vaccination. In the opinion of the pathologist the respiratory infection was rendered more severe by the successful recent vaccination; death was attributed to anoxia due to acute tracheobronchitis and to primary vaccination. The third case was in an adult woman, aged 49 years, who exhibited an accelerated reaction following re-vaccination. The local reaction led to a painful, swollen arm and general prostration and pyrexia, worsening from the sixth to the eleventh day following vaccination. The temperature and pulse then became normal, although the patient was still weak and toxic. On the eleventh day she fainted and was admitted to hospital for observation; after appearing to improve she suddenly collapsed and died on the following day. At post-mortem examination the pathologist found evidence of old rheumatic heart disease in a minor degree, and there was a toxic myocarditis. There was no evidence in the brain of lesions suggesting post-vaccinal encephalomyelitis. The cause of death was determined as being myocarditis following smallpox vaccination.

In the remaining four cases the deaths were assigned to causes other than the complications of vaccination and there is no reason to suppose a causal relationship between the vaccination and the death which ensued. In each, however, vaccination was mentioned on the death certificate and they will be recorded as "associated deaths" in due course in the Registrar General's statistical review for 1962. The first was in a man, aged 53 years, who was at the time of vaccination already an in-patient suffering from bronchitis and chronic cardiac failure. Following vaccination a skin rash, diagnosed as erythema multiforme, developed and the patient died twenty-three days after vaccination. The consultant physician and the pathologist concerned were satisfied that death was not causally related to vaccination. The next case was in a female aged 72 years who was under medical care with chronic cardiac failure at the time when she was vaccinated. The local reaction to vaccination was severe, she became breathless and there was bronchospasm. She died ten days after vaccination and death was certified as being due to chronic cardiac failure and bronchopneumonia. Recent vaccination was mentioned. The final case was in a female child aged 9 weeks, who died of bronchopneumonia only four days after vaccination. By this time a small vesicle had developed at the site of vaccination. Death was assigned to bronchopneumonia. The final case in the series was in a male child, 1 day old, whose death was assigned by the doctor concerned as due to Ia.Vaccinia II Prematurity. There is a note stating that the mother was vaccinated twelve hours before the birth of this premature child.

#### Reference

Daly, J. J., and Jackson, E., 1962. *Brit. med. J.*, ii, 1300.

## Dysentery

### 1. Dysentery notifications (including non-civilian) 1953-1962

| Year        | Corrected*<br>Notifications | Deaths† | Fatality Ratio |
|-------------|-----------------------------|---------|----------------|
| 1953 ... .. | 18,426                      | 36      | 0.20           |
| 1954 ... .. | 31,858                      | 39      | 0.12           |
| 1955 ... .. | 36,718                      | 40      | 0.11           |
| 1956 ... .. | 49,009                      | 33      | 0.07           |
| 1957 ... .. | 28,910                      | 22      | 0.08           |
| 1958 ... .. | 38,107                      | 32      | 0.08           |
| 1959 ... .. | 35,626                      | 33      | 0.09           |
| 1960 ... .. | 43,285                      | 36      | 0.08           |
| 1961 ... .. | 20,418                      | 34      | 0.17           |
| 1962 ... .. | 30,924                      | 28      | 0.09           |

\* Including original notifications from Port Health Districts.

† These deaths are those assigned to causes 045-048 (Dysentery, all forms) of the 1955 International List. They include deaths from amoebiasis with liver abscess—3 in 1962.

Notifications for 1962 were over 50 per cent. up on the figures for 1961. Nevertheless, the total was still under the average (33,328) for the ten years 1953-1962. In spite of the startling increase in the number of notifications deaths were fewer, accordingly the Fatality Ratio (0.09) was appreciably less than for 1961.

### II. Corrected notifications, England and Wales, 1962, by quarters and sex

|                       | Male  | Female | Total  | Percentage of<br>Annual Total |
|-----------------------|-------|--------|--------|-------------------------------|
| First Quarter ... ..  | 3,726 | 3,930  | 7,656  | 24.8                          |
| Second Quarter ... .. | 4,904 | 5,261  | 10,165 | 32.9                          |
| Third Quarter ... ..  | 2,377 | 2,538  | 4,915  | 15.9                          |
| Fourth Quarter ... .. | 3,970 | 4,183  | 8,153  | 26.4                          |

Increase in notifications is most marked in the second and fourth quarters. Although numbers are still greater in the first half of the year, emphasis has now shifted to the second quarter.

### III. Notification rates per 100,000 population in England and Wales 1958-1962

| Year        | Males    |     |     |     | Females  |     |     |     | Persons  |     |     |     |
|-------------|----------|-----|-----|-----|----------|-----|-----|-----|----------|-----|-----|-----|
|             | All Ages | 0-  | 5-  | 15+ | All Ages | 0-  | 5-  | 15+ | All Ages | 0-  | 5-  | 15+ |
| 1958 ... .. | 86       | 400 | 218 | 23  | 83       | 378 | 199 | 34  | 84       | 389 | 209 | 23  |
| 1959 ... .. | 80       | 368 | 198 | 24  | 77       | 329 | 175 | 36  | 78       | 349 | 187 | 30  |
| 1960 ... .. | 95       | 385 | 241 | 31  | 94       | 351 | 223 | 45  | 95       | 368 | 232 | 38  |
| 1961 ... .. | 45       | 205 | 105 | 15  | 43       | 186 | 89  | 21  | 44       | 196 | 97  | 18  |
| 1962 ... .. | 66       | 299 | 163 | 19  | 66       | 276 | 152 | 29  | 66       | 288 | 158 | 24  |

Increases are reflected in the total rates and age specific rates for both sexes. As usual female rates exceed male rates at ages 15 years and over.

*IV. Notifications per 100,000 population in the Standard Regions of England and Wales 1958-1962*

| Standard Region                 | 1958 | 1959 | 1960 | 1961 | 1962 |
|---------------------------------|------|------|------|------|------|
| England and Wales ... ..        | 84   | 78   | 95   | 44   | 66   |
| Northern ... ..                 | 79   | 48   | 58   | 31   | 52   |
| North Western ... ..            | 129  | 82   | 137  | 55   | 106  |
| East and West Riding ... ..     | 193  | 142  | 125  | 121  | 127  |
| North Midlands ... ..           | 53   | 94   | 78   | 44   | 87   |
| Midland ... ..                  | 59   | 97   | 45   | 43   | 72   |
| Eastern ... ..                  | 38   | 30   | 133  | 21   | 28   |
| London and South Eastern ... .. | 76   | 76   | 104  | 33   | 54   |
| Southern ... ..                 | 44   | 45   | 48   | 26   | 16   |
| South Western ... ..            | 48   | 38   | 91   | 32   | 46   |
| Wales ... ..                    | 82   | 116  | 61   | 29   | 38   |

Increase in notifications is most striking in North Western and North Midland regions where rates have practically doubled. In the Southern region, on the other hand, there is an appreciable fall to 16, now placing it in the most favoured position.

*V. Notifications per 100,000 population in conurbations and areas outside conurbations 1958-1962*

|                                                          | 1958 | 1959 | 1960 | 1961 | 1962 |
|----------------------------------------------------------|------|------|------|------|------|
| Conurbations—All ... ..                                  | 108  | 87   | 113  | 53   | 82   |
| Tyneside ... ..                                          | 59   | 42   | 29   | 9    | 18   |
| West Yorkshire ... ..                                    | 169  | 184  | 170  | 164  | 177  |
| South East Lancashire ... ..                             | 205  | 83   | 210  | 71   | 140  |
| Merseyside ... ..                                        | 110  | 61   | 69   | 39   | 73   |
| West Midlands ... ..                                     | 36   | 59   | 34   | 25   | 50   |
| Greater London ... ..                                    | 92   | 85   | 111  | 39   | 61   |
| Urban areas, 100,000 population and over ... ..          | 119  | 135  | 111  | 56   | 84   |
| Urban areas of population 50,000 to under 100,000 ... .. | 77   | 72   | 96   | 36   | 58   |
| Urban areas of population under 50,000 ... ..            | 55   | 65   | 79   | 36   | 59   |
| Rural districts ... ..                                   | 54   | 43   | 67   | 34   | 38   |

The higher notification rate is reflected in increases in all areas, but in Tyneside, South East Lancashire, and West Midlands the rise is particularly sharp. As usual rates for all conurbations and urban areas of 100,000 population and over are considerably greater than are those for small urban areas and rural districts.

*VI. Laboratory findings 1958-1962 (from returns of the Public Health Laboratory Service)*

| Year        | Bacillary dysentery |                 |                   |                  | Amoebic dysentery |
|-------------|---------------------|-----------------|-------------------|------------------|-------------------|
|             | Total Isolations    | Sonne per cent. | Flexner per cent. | Others per cent. | Total Isolations  |
| 1958 ... .. | 35,933              | 97.1            | 2.2               | 0.01             | 170               |
| 1959 ... .. | 32,308              | 98.9            | 1.0               | 0.07             | 150               |
| 1960 ... .. | 39,408              | 98.4            | 1.2               | 0.26             | 158               |
| 1961 ... .. | 18,924              | 96.0            | 2.0               | 0.12             | 108               |
| 1962 ... .. | 32,248              | 98.2            | 1.7               | 0.18             | 123               |

Sonne still dominates the picture. The percentage of Flexner is less than in 1961; increase in "others" is due to an outbreak of Boyd, Type 1, dysentery in a boarding school in Cambridge.

### *Acute Encephalitis*

#### *Corrected notifications by age and sex 1962*

| Age          | Infective Encephalitis |        |       | Post-infectious Encephalitis |        |       |
|--------------|------------------------|--------|-------|------------------------------|--------|-------|
|              | Male                   | Female | Total | Male                         | Female | Total |
| 0- ... ..    | 12                     | 10     | 22    | 16                           | 13     | 29    |
| 5- ... ..    | 21                     | 16     | 37    | 30                           | 20     | 50    |
| 15- ... ..   | 20                     | 28     | 48    | 17                           | 20     | 37    |
| 45- ... ..   | 2                      | 1      | 3     | —                            | 3      | 3     |
| 65- ... ..   | 1                      | 1      | 2     | —                            | —      | —     |
| Unknown ...  | —                      | 1      | 1     | —                            | —      | —     |
| All ages ... | 56                     | 57     | 113   | 63                           | 56     | 119   |

In 1962, corrected notifications of infective encephalitis numbered 113 and of post infectious encephalitis 119. The number of deaths attributed to acute infectious encephalitis was 117 distributed by age as follows: 0-4 years 49; 5-14 years 11; 15-44 years 31; 45 years and over 26. Deaths from post infectious encephalitis are not separately recorded but are included with other forms of encephalitis in No. 343 of the International Statistical Classification of Diseases, Injuries and Causes of Death. In this group there were 104 deaths, the age distribution being: 0-4 years 30; 5-14 years 7; 15-44 years 23; 45 years and over 44.

### *Influenza*

During the winter of 1961-62 influenza was prevalent in many parts of England and Wales. Outbreaks associated with influenza virus B began to be reported about the middle of November, 1961. Most of the earlier outbreaks affected mainly children of school age but, during November, a moderately extensive outbreak involving adults as well as school-children developed in south-west Wales. Substantial increases in new claims to sickness benefit were recorded at local offices of the Ministry of Pensions and National Insurance in Pembrokeshire, Carmarthenshire and Cardiganshire.

A general increase in morbidity and mortality from respiratory diseases began in mid-November and was followed by a steep rise in the second half of December. New claims to sickness benefit reached a peak of 441,200 in the week ended 9th January, 1962 and influenza deaths a peak of 783 in the week ended 13th January. All the outbreaks in which influenza virus was found to be the causative agent were associated with influenza virus B, antigenically similar to strains isolated in England during 1959.

Table 1 shows the averages of the total weekly new claims to sickness benefit in England, Wales and Scotland in successive winters, for periods of 15 weeks from about mid-December to the end of March, and a similar average for the 15-week period from the week ended 13th August, 1957 to the week ended 19th November, 1957, which covered the main wave of the 1957 epidemic of Asian influenza. The data on which these figures are based have been supplied by the courtesy of Ministry of Pensions and National Insurance.

TABLE 1

| Year           | Weeks ended | Average of total weekly new Claims (thousands) | Epidemic influenza |
|----------------|-------------|------------------------------------------------|--------------------|
| 1956-57 ... .. | 25/12- 2/4  | 164.5                                          |                    |
| 1957 ... ..    | 13/8 -19/11 | 279.1                                          | Virus A2           |
| 1957-58 ... .. | 24/12- 1/4  | 204.3                                          | Virus A2           |
| 1958-59 ... .. | 23/12-31/3  | 248.8                                          | Virus A2 and B     |
| 1959-60 ... .. | 22/12-29/3  | 183.5                                          |                    |
| 1960-61 ... .. | 20/12-28/3  | 244.7                                          | Virus A2           |
| 1961-62 ... .. | 19/12-27/3  | 241.7                                          | Virus B            |

Notification of acute pneumonia followed the usual seasonal distribution, the number in the first quarter being higher than in any other quarter. The corrected figures for each quarter were: 1st quarter 6,165; 2nd quarter 2,254; 3rd quarter 1,219; and 4th quarter 2,891. The total for the year was 12,529.

The distribution of deaths attributed to influenza in England and Wales was: 1st quarter 2,858; 2nd quarter 147; 3rd quarter 51; 4th quarter 252. Table 2 shows the number of deaths attributed to influenza, pneumonia and bronchitis in each of the past seven years.

TABLE 2

*Deaths attributed to influenza, pneumonia and bronchitis 1956-62*

|                | 1956   | 1957   | 1958   | 1959   | 1960   | 1961   | 1962   |
|----------------|--------|--------|--------|--------|--------|--------|--------|
| Influenza ...  | 2,626  | 6,716  | 2,401  | 7,862  | 1,098  | 7,102  | 3,308  |
| Pneumonia ...  | 22,414 | 22,848 | 23,738 | 26,390 | 24,343 | 29,275 | 31,672 |
| Bronchitis ... | 29,909 | 27,097 | 29,396 | 29,051 | 26,485 | 31,363 | 33,293 |

### *Diphtheria*

|                                               | Annual Average 1916-25 | Annual Average 1933-42 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|-----------------------------------------------|------------------------|------------------------|------|------|------|------|------|------|------|------|------|------|
| Corrected notification* Deaths†               | 51,753‡                | 55,125‡                | 266  | 173  | 155  | 53   | 37   | 80   | 102  | 49   | 51   | 16   |
| Fatality ratio (deaths per 100 notifications) | 4.214                  | 2.783                  | 20   | 8    | 12   | 3    | 4    | 8    | —    | 5    | 8    | 2    |
|                                               | 8.2                    | 5.0                    | 7.5  | 4.6  | 7.7  | 5.7  | 10.8 | 10.0 | —    | 10.2 | 15.7 | 12.5 |

\* Including original notifications from Port Health Districts (1954, 7; 1955, 1; 1956, 2; 1957, Nil; 1958, 2; 1959, Nil; 1960, Nil; 1961, 1; 1962, Nil).

† Partially corrected.

‡ Figures from 1952 to 1957 included deaths occurring when the interval between the onset of the disease and death exceeded one year. These have since been excluded.

Sixteen confirmed notifications of diphtheria were made in England and Wales during 1962. In one of these cases, bacteriological confirmation was not obtained. This is the lowest figure recorded since the introduction of compulsory notification of this disease, but two of the cases died, a fatality ratio of 12.5, which underlines the substantial risk of death to those who become ill with diphtheria.

The confirmed cases occurred in Glamorgan, 8 cases; Yorkshire, 3 cases; Hertfordshire, 2 cases; Birmingham, Essex and Liverpool, 1 case each, so that most of the country remained free of the disease. The only outbreak was in Glamorgan where 7 cases occurred in Neath and Port Talbot and where six months later a further case developed in a sibling of a carrier who had been discovered and treated during the outbreak. The difficulties created by such an outbreak are illustrated by the fact that 147 carriers were discovered during the investigation in Glamorgan. These were admitted to hospital and treated to eliminate their carrier state.

None of the confirmed cases of diphtheria in 1962 had been effectively immunised against that infection; indeed only 3 had had any anti-diphtheritic inoculation at all.

| Age               | No record of immunisation | Incomplete or doubtful immunisation more than five years before onset | Primary course or reinforcing doses with previous five years | Total |
|-------------------|---------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------|-------|
| 0-1 year ...      | —                         | —                                                                     | —                                                            | —     |
| 2-4 years ...     | 1                         | —                                                                     | —                                                            | 1     |
| 5-9 years ...     | 4                         | 1                                                                     | —                                                            | 5     |
| 10-14 years ...   | 3                         | 2                                                                     | —                                                            | 5     |
| 15 years and over | 5                         | —                                                                     | —                                                            | 5     |
| Total ...         | 13                        | 3                                                                     | —                                                            | 16    |

The diphtheria immunisation index for 1962, i.e. the percentage of the total number in the appropriate age-groups who have completed a course of primary immunisation or have received reinforcing injection within the past five years is 54 per cent. for children under 15 years and 65 per cent. for children under 5 years.

A total of 652,904 children under the age of 15 were immunised in 1962 compared with 874,987 in 1961 and 755,339 in 1960.

### *Rubella*

During the first half of 1962 the incidence of rubella was exceptionally high. In some parts of England and Wales outbreaks of this disease were more extensive than any experienced since 1940 (Watson, 1962) and continued well into the third quarter of the year.

Rubella is not generally notifiable but there are four County Boroughs in which local notification has been the rule for a number of years and one Rural District in which the disease was made notifiable by a local Order which came into force on 1st May, 1961. Weekly notifications during 1962 reached a peak in the four County Boroughs at various times from the week ended 31st March to the week ended 5th May. In the Rural District a peak was reached in the week ended 30th June. By the end of June two of the County Boroughs had had more notifications of rubella than in any of the preceding thirty years, with an incidence for the whole year exceeding 2,000 cases per 100,000 population. The annual incidence in the other two County Boroughs was 549 and 286, respectively, and a little over 1,000 in the Rural District.

Annual figures in the four County Boroughs during the period 1932 to 1962 showed an incidence in excess of 500 cases per 100,000 population in each of the following years:

|                      |     |     |                                     |
|----------------------|-----|-----|-------------------------------------|
| County Borough No. 1 | ... | ... | 1940, 1944, 1952, 1955, 1961, 1962. |
| County Borough No. 2 | ... | ... | 1934, 1942, 1952, 1956              |
| County Borough No. 3 | ... | ... | 1940, 1947, 1953, 1962.             |
| County Borough No. 4 | ... | ... | 1935, 1952, 1956, 1962.             |

Although statistical data were available only in these limited areas there is little reason to doubt that a similarly high incidence was experienced in 1962 in many parts of England and Wales. An account of the impact of the epidemic in a London suburban practice, between March and July, was published by Fry, Dillane and Fry (1962), with an estimated incidence of between 6 per cent. and 9 per cent. of 6,500 patients.

Although usually a benign disease rubella has assumed considerable importance during recent years with the growing awareness of its potentialities for causing congenital defects in a proportion of infants whose mothers acquire the infection during the early stages of pregnancy (Ministry of Health 1960). The prevalence of the disease in 1962 gave rise to heavy demands for gamma globulin for prophylactic administration to expectant mothers exposed to risk of infection in their homes during the first three months of pregnancy. The efficacy of gamma globulin as a protection against infection by rubella is still under investigation, but there is sufficient reason to regard it as a useful measure and supplies are available to doctors through the Public Health Laboratory Service.

The reported cultivation by American workers of viruses from typical cases of rubella (Weller and Neva, 1962; Parkman *et al.*, 1962; Sever *et al.*, 1962) opens up possibilities of developing methods for the laboratory diagnosis of this disease and for specific prophylaxis.

#### References

- Fry, J., Dillane, J.B. and Fry, L., 1962. *Brit. med. J.*, ii, 833.  
 Ministry of Health, 1960. *Rubella and other virus infections in Pregnancy*. (Reports on Public Health and Medical Subjects, No. 101.) London, H.M.S.O.  
 Parkman, P. D., Buescher, E. L. and Artenstein, M. S., 1962. *Proc. Soc. exp. Biol. (N.Y.)*, 111, 225.  
 Sever, J. L., Schiff, G. M. and Traub, R. G., 1962. *J. Amer. med. Ass.*, 182, 663.  
 Watson, G. I., personal communication.  
 Weller, T. H. and Neva, F. A., 1962. *Proc. Soc. exp. Biol. (N.Y.)*, 111, 215.

## Food Poisoning

### Incidence

Table I compiled from the annual reports on food poisoning submitted by Medical Officers of Health in accordance with Memo. 188 shows a decrease in the incidence of food poisoning compared with previous figures. This is also reflected in the Registrar General's weekly notifications (uncorrected). For 31 weeks of the year the weekly figure was the lowest since 1955, and only in 12 weeks was the figure above the median for the week in the period 1955-61. Table II gives the incidence of Salmonellosis not directly attributable to food, as notified by Medical Officers of Health.

### Fatal Cases

There were 9 fatal cases directly associated with food poisoning. Two were patients affected by staphylococcal enterotoxin, one a baby of six weeks in whom the organism was isolated from the feeding bottle, and the other in a woman aged 70, after a meal including chicken-in-aspic which was infected. One person aged 51 died after eating a meat dish infected with *Cl. welchii*. *S. newport* in a pork pie led to the death of a woman aged 85. There were four deaths due to *S. typhimurium*, three of which were associated with the Chesterfield outbreak described below, and in the other, a woman aged 70, the organism was isolated from pork pies, and food handlers.

### Interesting outbreaks

An outbreak due to *S. typhimurium* and lasting for about two months in the Borough and Rural districts of Chesterfield was responsible for seventy known cases and symptomless excretors with three deaths directly due to food poisoning. The outbreak occurred as a series of sporadic cases and family outbreaks whose association with each other was not apparent until phage typing was completed for several of the incidents. The phage type was U.72 which was one not commonly recorded.

The first case was a woman from Alfreton, aged 62, who visited Chesterfield and bought a picnic lunch of ham sandwiches and sausage rolls. At the same shop she bought some bones for her dog. The next day she and the dog were ill and she died a week later. The series in the Chesterfield area started about the same time but it was a fortnight before phage typing indicated a common cause for them all. Inevitably there were delays before information reached the Medical Officers of Health, and it was over a month before notifications were made promptly.

A fortnight after the first case a farm labourer, who had been attending a calf ill with scour, was diagnosed as suffering from food poisoning. *S. typhimurium* U.72 was obtained from the calf and the man. This occurred at Farm B, which was outside the area of Derby County, but co-operation between the two P.H.L.S. laboratories at Derby and Sheffield established the link, and with the help of the the Divisional Veterinary Officer investigations were made at the farm.

The sick calf had been purchased recently from Farm A in Nottinghamshire, where the farmer was mainly a pig breeder who regularly supplied Chesterfield Abattoir with pigs. At Farm A it was found that eight of ten calves on the farm were infected with *S. typhimurium* U.72, and some had recently died. The calf pen and the piggeries were in close proximity and two employees were symptomless excretors of this organism. A hatch of 27 pigs had been sent to Chesterfield about the time of the deaths of the calves, just prior to the first case of the Chesterfield outbreak.

The shop at which the Alfreton woman bought her picnic lunch sold a variety of prepared meats and bought its meat direct from the Chesterfield abattoir. The timing and bacteriology of the outbreak suggest that Farm A was the original source of the infection. This outbreak is further evidence of the value of the work done at the Enteric Reference Laboratory on *S. typhimurium* phage typing. The incidence of human and animal cross-infection is

interesting and emphasizes the importance of co-operation between medical and veterinary workers. The moral is one, often expressed before, that food hygiene starts on the farm.

In October, following a banquet at a London restaurant several persons were reported as suffering from food poisoning. *S. bredeney* was found to be the causative organism. The food vehicle was a ham, found to be contaminated, and the organism was also obtained from food handlers in the restaurant, the premises of the distributors, and the processing firm. The distributors also handled a variety of other processed meats.

About this time cases and family outbreaks due to *S. bredeney* were reported from a number of Metropolitan boroughs and districts around London. Several of the cases were traced to purchasers of processed meats from the distributors, or were contact infections from cases which attended the banquet.

At the end of November there was an outbreak in a private boarding school, in which 54 of the pupils and staff were affected, and which was traced to canned corned beef contaminated with *S. onderstepoort*. This organism has only occasionally been associated with food poisoning in this country and has also been isolated from imported Bechuanaland Boneless Beef and Coconut. The corned beef was canned in South Africa, but the cannery firm went out of business over a year ago so that the tin would be at least eighteen months old. How the salmonellae survived the canning process is difficult to determine.

TABLE I

1962 Food poisoning England and Wales—From Annual Returns of M.O.s.H.

|                              | Outbreaks |       | Family Outbreaks |       | Sporadic Cases | Totals    |       |
|------------------------------|-----------|-------|------------------|-------|----------------|-----------|-------|
|                              | Incidents | Cases | Incidents        | Cases | Single Cases   | Incidents | Cases |
| <i>S. typhimurium</i> ...    | 18        | 227   | 205              | 544   | 1,220          | 1,443     | 1,991 |
| Other <i>Salmonellae</i> ... | 25        | 433   | 72               | 194   | 459            | 556       | 1,086 |
| <i>Cl. welchii</i> ...       | 32        | 1,163 | 5                | 14    | 35             | 72        | 1,212 |
| <i>Staph. aureus</i> ...     | 14        | 455   | 13               | 31    | 104            | 131       | 590   |
| Other causes ...             | 1         | 15    | 1                | 2     | 10             | 12        | 27    |
| Cause unknown ...            | 35        | 615   | 200              | 569   | 1,125          | 1,360     | 2,309 |
| Totals ...                   | 125       | 2,908 | 496              | 1,354 | 2,953          | 3,574     | 7,215 |

TABLE II

*Salmonellosis, other than food-borne*

|                              | Outbreaks |       | Family Outbreaks |       | Sporadic Cases | Totals    |       |
|------------------------------|-----------|-------|------------------|-------|----------------|-----------|-------|
|                              | Incidents | Cases | Incidents        | Cases | Single Cases   | Incidents | Cases |
| <i>S. typhimurium</i> ...    | 4         | 12    | 39               | 113   | 148            | 191       | 273   |
| Other <i>Salmonellae</i> ... | 2         | 20    | 14               | 39    | 67             | 83        | 126   |
| Totals ...                   | 6         | 32    | 53               | 152   | 215            | 274       | 399   |

### III

#### INTERNATIONAL HEALTH

The beginning of the year saw smallpox present in the country. It had been imported during the second week in December, 1961. The health control aspects of the five importations which occurred between then and 11th January, 1962, were described in this report last year. A description of the outbreak which resulted is given in the chapter on smallpox and a more detailed report (Public Health and Medical Subjects No. 109, H.M.S.O.) has already been published, but the following information is of concern to port health administration.

It will be recalled that smallpox had been present in Karachi during 1961. In mid-December a significant increase in the number of cases occurred. Five Pakistani immigrants who entered this country through London Airport between 16th December, 1961, and 11th January, 1962, developed smallpox after arrival. All five had valid international certificates of recent revaccination. Three arrived by direct flight, two by indirect flights which were not as a routine subject to health control on arrival here.

More stringent controls were progressively put into effect as evidence came to hand that revaccinations taking place in Karachi were not taking effect in an appreciable number of persons. When the third importation had been identified arrangements were made on 15th January, 1962, to regard as "suspects" all travellers who had been in Karachi within fourteen days prior to arrival. The measures taken included clinical examination of vaccination sites and, where necessary, offering vaccination and subsequent isolation for fourteen days or until the vaccination had taken. Destination addresses of disembarking passengers were taken and they were put under formal surveillance. The Department advised that these precautions should be taken at all sea ports and airports throughout the country at this time. Checks made during February and March showed that some 67 per cent. of arrivals from Pakistan came on direct flights. The remainder (33 per cent.) came by "indirect flight"—having changed their aircraft at one of nine different airports, four of them being within the "excepted area"; in the latter reliance is, by agreement, placed on the health measures taken at the first airport used.

From 15th January until 9th March while these stringent measures were in force 96 suspects were isolated either in Denton Hospital or the Eastern Hospital. There were 37 suspects who showed evidence, by a successful revaccination following vaccination at the airport or at the hospital, that they were susceptible to vaccinia and presumably also to smallpox on arrival. This number represents just under one per cent. of the arrivals from Pakistan during the time the measures were in force.

This experience demonstrated that it would be possible to have more confidence in the International Certificate of Vaccination against smallpox as

evidence of protection against smallpox if it were in a form recording the result of a revaccination. The form of the certificate is laid down by the International Sanitary Regulations, so this question was necessarily referred to the World Health Organisation. It remained under discussion by expert bodies of the Organisation during the year. The amendment suggested by this country was not accepted as feasible but the matter will be further discussed by the World Health Assembly.

In August another importation occurred, this time by ship to the Port of London, where an Indian boy aged three arrived with his family from Bombay and was immediately isolated. Apart from two highly modified attacks in his sister and brother no further cases occurred. These importations again demonstrated the continuing need of the system of health control at sea ports and airports. As a constant reminder of the threat of importations of smallpox, 50 persons who had recently arrived in this country from abroad were seen by members of the panel of smallpox consultants at the request of medical officers of health because smallpox was entertained as a possible diagnosis of their illness.

The Commonwealth Immigrants Act, 1962, came into force on 1st July. The general aim of the medical examination of Commonwealth immigrants which is provided for in this Act is to enable immigration officers on medical advice to refuse admission to certain categories of immigrants on health grounds. The powers given to medical inspectors of aliens under the Aliens Order, 1953, differ in certain vital respects from those given under the Commonwealth Immigrants Act; for example, the latter excludes the wives and children of Commonwealth immigrants from the provisions relating to medical examination. While the Act necessitated separate confidential instructions being sent by the Department to medical inspectors appointed under the Act, the aims and objects of it and the Aliens Order are sufficiently close to enable the same arrangements made at sea ports and airports with some expansion of facilities and additional personnel to deal with both.

### Airports

During the year 131,643 aircraft carrying 4,065,979 passengers arrived at customs airports from abroad. Of these passengers, 2,483,296 came from territories within the "excepted area"—defined in the Public Health (Aircraft) Regulations, 1953, and its amendments as Belgium, France, Federal Republic of Germany, Irish Republic, Italy, Luxembourg, Netherlands—and were free from health control except during the first three months of the year when the special arrangements already described were in force.

### *London Airport*

Some 7½ million passengers used London Airport during the year. A total of 2,165,290 passengers arrived from all parts of the world on 46,193 aircraft. The remainder included passengers departing on international flights and on those using internal services. The arrivals from abroad showed an increase over 1961 of 195,469 passengers and of 1,521 aircraft.

The following table shows the area of origin of the arriving aircraft and passengers :—

| <i>From</i>               | <i>Number of<br/>Passengers</i> | <i>Number of<br/>Aircraft</i> |
|---------------------------|---------------------------------|-------------------------------|
| Europe " Excepted Areas " | 994,508                         | 21,709                        |
| Rest of Europe ... ..     | 539,249                         | 11,526                        |
| North America ... ..      | 309,308                         | 5,762                         |
| Central and South America | 45,152                          | 699                           |
| Africa ... ..             | 101,060                         | 2,334                         |
| Asia ... ..               | 176,013                         | 4,163                         |
|                           | <hr/> 2,165,290                 | <hr/> 46,193                  |

Of the arriving passengers 1,300,792 were British and 864,498 were aliens. The number of aliens medically examined was 1,394 ; medical reports were made on 78 and 13 were not granted leave to land on health grounds. In addition 2,462 Commonwealth Immigrants were examined ; 80 medical reports on them were issued and four were refused entry. Certificates that they had been disinfected were issued for 1,991 aircraft.

### Sea Ports

The number of cases of communicable diseases reported on 328 ships arriving at our major ports from foreign ports was 473 distributed as follows :—

- 1 Cerebro-spinal Meningitis.
- 98 Chickenpox.
- 51 Dysentery.
- 22 Enteric Fever.
- 1 Erysipelas.
- 34 Gastro-enteritis.
- 24 German Measles.
- 4 Glandular Fever.
- 16 Infective Hepatitis.
- 30 Influenza.
- 1 Leprosy.
- 36 Malaria.
- 65 Measles.
- 28 Mumps.
- 32 Pneumonia.
- 2 Poliomyelitis.
- 13 Pyrexia of unknown origin.
- 4 Scabies.
- 1 Scarlet Fever.
- 7 Tonsillitis.
- 3 Whooping Cough.

### International Deratting and Deratting Exemption Certificates

A total of 154 deratting certificates and 4,270 deratting exemption certificates were issued in the 37 designated and approved ports in England and Wales. The port of Littlehampton was added during 1962 to the list of ports approved to issue deratting and deratting exemption certificates.

The following tables show the number of certificates issued in recent years:—

| Year |     |     | Deratting<br>Certificates | Exemption<br>Certificates | Total |
|------|-----|-----|---------------------------|---------------------------|-------|
| 1955 | ... | ... | 337                       | 4,522                     | 4,859 |
| 1956 | ... | ... | 336                       | 4,935                     | 5,271 |
| 1957 | ... | ... | 332                       | 4,905                     | 5,237 |
| 1958 | ... | ... | 287                       | 4,882                     | 5,169 |
| 1959 | ... | ... | 251                       | 4,884                     | 5,135 |
| 1960 | ... | ... | 216                       | 4,920                     | 5,136 |
| 1961 | ... | ... | 205                       | 4,772                     | 4,977 |
| 1962 | ... | ... | 154                       | 4,361                     | 4,515 |

In five ports 80 deratting certificates were issued after the use of sodium fluoroacetate. Hydrocyanic acid was used as a method of deratting for 51 ships in eight ports. Methyl bromide was used on one occasion. Sulphur dioxide and warfarin were used in nine and eight instances respectively and trapping and poisoning in five.

### Medical Examination of Aliens

The following table gives the number of aliens arriving during the year and the number examined and reported on by medical inspectors. Figures in parentheses are those for 1961:—

|          |     |     | Number<br>of<br>aliens   | Number<br>medically<br>examined | Number of<br>medical<br>reports<br>made | Refused<br>permission<br>to land for<br>medical reasons |
|----------|-----|-----|--------------------------|---------------------------------|-----------------------------------------|---------------------------------------------------------|
| Seaports | ... | ... | 856,922<br>(814,760)     | 29,434<br>(34,829)              | 407<br>(391)                            | 90<br>(88)                                              |
| Airports | ... | ... | 995,503<br>(918,314)     | 2,340<br>(1,022)                | 93<br>(35)                              | 15<br>(18)                                              |
| Total    | ... | ... | 1,852,425<br>(1,733,074) | 31,774<br>(35,851)              | 500<br>(426)                            | 105<br>(106)                                            |

### Medical Examination of Commonwealth Immigrants

Figures for the six months since the Act came into force on 1st July are:—

|          |     |     | Number<br>of<br>C.Is. | Number<br>medically<br>examined | Number of<br>medical<br>reports<br>made | Refused<br>permission<br>to land for<br>medical reasons |
|----------|-----|-----|-----------------------|---------------------------------|-----------------------------------------|---------------------------------------------------------|
| Seaports | ... | ... | 88,699                | 3,012                           | 23                                      | 8                                                       |
| Airports | ... | ... | 103,671               | 3,811                           | 90                                      | 4                                                       |
| Total    | ... | ... | 192,370               | 6,823                           | 113                                     | 12                                                      |

## IV

## VENEREAL DISEASES

The rise and fall in the incidence of venereal diseases depend upon a number of interconnected and rather complicated factors which are sometimes difficult to assess. The pattern of recent years has shown a consistent increase in the numbers of cases of the most prevalent of these diseases and the reasons for this have been discussed in successive reports. During 1962 there was some evidence of a change of pattern, although the circumstances to which recent increases have been attributed are now known to have changed.

## Syphilis

Attention has been drawn to the fact that the incidence of syphilis diagnosed within the first year of infection, that is infectious syphilis, has increased since 1958, and although the numbers have been small they have given rise to some anxiety because of the considerable increases of cases of infectious syphilis reported from some other countries. In these days of rapid travel and of considerable movements of population, it is only too likely that syphilis, with its long incubation period and unobtrusive clinical presentation, will easily spread from one country to another. In fact, the figures for early syphilis reported from the clinics in 1962 again show a rise, but the rise is very small. In 1961, there were 965 cases in males and 234 in females, giving a total of 1,199. In 1962 there were 995 cases in males and 229 in females, giving a total of 1,224 and an increase of only 2 per cent. The numbers of cases of infectious syphilis reported from ten urban areas in 1961 and 1962 are given in Table I.

TABLE I

*Early Syphilitic Infections dealt with for the First Time in 1961 and 1962 in Ten Sample Areas*

|                                                                     | 1961  |         |        | 1962  |         |        |
|---------------------------------------------------------------------|-------|---------|--------|-------|---------|--------|
|                                                                     | Males | Females | Totals | Males | Females | Totals |
| London Administrative Area (3,185,770)                              | 535   | 121     | 656    | 555   | 93      | 648    |
| Merseyside (Liverpool, Bootle, Birkenhead and Wallasey) (1,074,880) | 50    | 1       | 51     | 67    | 12      | 79     |
| Manchester and Salford ... (813,170)                                | 22    | 3       | 25     | 16    | 5       | 21     |
| Tyneside (Newcastle, South Shields and Tynemouth) ... (447,780)     | 17    | 9       | 26     | 27    | 9       | 36     |
| Hull, Kingston-upon- ... (301,640)                                  | 7     | 2       | 9      | 9     | 3       | 12     |
| Southampton ... (205,790)                                           | 13    | 1       | 14     | 14    | 5       | 19     |
| Bristol ... (434,260)                                               | 12    | —       | 12     | 29    | 2       | 31     |
| Birmingham ... (1,115,080)                                          | 10    | 9       | 19     | 23    | 5       | 28     |
| Leeds and Bradford ... (810,860)                                    | 5     | —       | 5      | 10    | 5       | 15     |
| Sheffield ... (495,240)                                             | 3     | —       | 3      | 2     | 3       | 5      |

Figures in brackets denote estimated populations at 30th June, 1962.

There was an increase in the number of cases in men found in the London area, from 535\* in 1961 to 555 in 1962, but a decrease in women from 121 to 93, so that the total number of cases in this area fell, from 656 to 648. Increases in cases in males were also reported from Merseyside, Tyneside, Birmingham, Bristol, Leeds and Bradford, Southampton and Hull, but in Manchester and Sheffield the numbers decreased. Cases in women showed a small increase on Merseyside, in Manchester, in Southampton and in Bristol but elsewhere the numbers decreased or were virtually unchanged.

Last year attention was drawn to the importance of homosexual practices in the spread of syphilis and to the fact that these cases, and those in which seamen had contracted infection abroad, accounted to some extent for the considerable disparity between the numbers of cases found in males and in females. The figures indicate that the disparity between males and females has increased slightly, which suggests that these two sources of infection are still important in maintaining an infection which might otherwise be approaching the point of extinction.

As regards late syphilis, manifest cases of the disease affecting the cardiovascular and nervous systems have continued to decline although there was a slight increase in cases of cardiovascular syphilis in females. The incidence of late latent syphilis, in which serological tests are positive but there are no signs of the disease, has also fallen but the number is still disproportionately large as compared with that of late manifest syphilis. Returns from the clinics give no information as to the countries of origin of patients to whom the diagnosis of late latent syphilis was attached, but past experience suggests that many of these patients may have been immigrants. It is well known that positive serological tests for syphilis without physical signs are much more commonly found among immigrants from the Commonwealth than in the local population, but what cannot be determined is how many of these positive tests are really due to yaws in childhood and not to syphilis. In the majority of cases there is no reliable means of making this distinction and the decision as to whether the case is diagnosed as syphilis or yaws seems to be a matter of local inclination. The number of cases of yaws reported from the clinics in 1962 was 566, as compared with 579 in 1961. In most of these cases the diagnosis is likely to be based on the patient's history or the presence of characteristic scars on the lower legs, or both, associated with positive serological tests. Details regarding late syphilis are shown in Table II.

TABLE II  
Late Syphilis

|                                     | Year | Males | Female | Total |
|-------------------------------------|------|-------|--------|-------|
| Cardiovascular Syphilis ...         | 1961 | 183   | 52     | 235   |
|                                     | 1962 | 158   | 61     | 219   |
| Neurosyphilis ...                   | 1961 | 286   | 134    | 420   |
|                                     | 1962 | 232   | 117    | 349   |
| All other late or latent stages ... | 1961 | 1,178 | 1,070  | 2,248 |
|                                     | 1962 | 1,003 | 1,007  | 2,010 |
| Total late or latent stages ...     | 1961 | 1,647 | 1,256  | 2,903 |
|                                     | 1962 | 1,393 | 1,185  | 2,578 |

\* In the Report for 1961 this number was incorrectly given as 545, instead of 535, and the total for the London area as 666 instead of 656.

The Registrar General's figures for 1962 show that deaths from general paralysis of the insane in males and females have again declined and there was also a decline in deaths from tabes dorsalis. On the other hand deaths due to syphilitic aortic aneurysm increased a little. (Appendix C, Table E.)

Judging by the returns from the clinics early congenital syphilis has almost ceased to exist in this country. The number of new cases in infants in the first year of life was 11 in 1962, as compared with 23 in 1961. Returns to the Registrar General indicate that the death rate of infants in the first year of life certified as due to this cause was 0.001 per 1,000 live births. These facts reflect the low incidence of acquired syphilis in the population but due credit must be given to the standards of care in antenatal clinics and to the now almost universal practice of taking serological tests to exclude the presence of syphilis in prospective mothers. The experience of other countries should impress upon us that the fact that this part of the problem of syphilis seems to be nearing solution is not an indication for relaxing precautions which have proved so effective. The number of cases of congenital syphilis discovered among older children again shows a satisfactory decline from 317 in 1961 to 307 in 1962. This total is just over a quarter of that reported in 1950.

#### *Testing for Syphilis in Pregnancy*

Table III shows results of serological tests for syphilis on pregnant women reported from six regional blood transfusion centres where routine serological tests are done for the regions concerned.

**TABLE III**  
*Syphilis Tests in Pregnancy 1962*

| Regional blood transfusion centre | Number of ante-natal patients tested |            |                  | Positive syphilis tests |           |            |           |                  |
|-----------------------------------|--------------------------------------|------------|------------------|-------------------------|-----------|------------|-----------|------------------|
|                                   | Primiparae                           | Multiparae | Parity not known | Primiparae              |           | Multiparae |           | Parity not known |
|                                   |                                      |            |                  | No.                     | Per cent. | No.        | Per cent. |                  |
| Cambridge ... ..                  | 8,873                                | 4,090      | 849              | 3                       | 0.03      | 3          | 0.07      | —                |
| Leeds ... ..                      | 10,370                               | 7,656      | 1,896            | 22                      | 0.21      | 34         | 0.44      | 5                |
| Liverpool ... ..                  | 17,854                               | 22,018     | —                | 7                       | —         | 10         | 0.01      | —                |
| Oxford ... ..                     | 3,873                                | 3,370      | 142              | 8                       | 0.21      | 4          | 0.12      | —                |
| Plymouth ... ..                   | 2,216                                | 1,971      | —                | 4                       | 0.18      | 6          | 0.30      | —                |
| Sheffield ... ..                  | 18,686                               | 9,328      | —                | 22                      | 0.12      | 33         | 0.35      | —                |

In addition 17 doubtful results were reported in primiparae and 17 in multiparae.

A summary of results of these tests in the cases of primiparae and multiparae at these centres during the past seven years is given below. It was noted that the percentage incidence of positive tests, which had shown progressive decline in the preceding years, rose slightly in 1961. A contributory factor in the increase was thought to be the greater number of women immigrants, particularly from the West Indies, attending the antenatal clinics; but in spite of this the percentage incidence fell again in 1962.

The likelihood that some of these women are not, in fact, suffering from syphilis but have serological evidence of past infections with yaws has been discussed.

TABLE IV

| Year        | Number of Primiparae | Percentage positive | Number of Multiparae | Percentage positive |
|-------------|----------------------|---------------------|----------------------|---------------------|
| 1954 ... .. | 39,181               | 0·23                | 47,941               | 0·32                |
| 1955 ... .. | 41,392               | 0·21                | 40,712               | 0·43                |
| 1956 ... .. | 48,420               | 0·28                | 40,295               | 0·35                |
| 1957 ... .. | 49,914               | 0·14                | 43,730               | 0·29                |
| 1958 ... .. | 49,315               | 0·13                | 40,765               | 0·23                |
| 1959 ... .. | 56,962               | 0·14                | 46,531               | 0·16                |
| 1960 ... .. | 61,606               | 0·08                | 46,349               | 0·14                |
| 1961 ... .. | 67,294               | 0·13                | 49,583               | 0·27                |
| 1962 ... .. | 61,872               | 0·11                | 48,433               | 0·19                |

### Gonorrhoea

In recent years gonorrhoea has been the main problem at the venereal diseases clinics and the considerable and consistent rise in the numbers of cases since 1954 has given cause for concern. In 1962 there was a decline in the number of cases for the first time in 8 years, the total falling from 37,107 in 1961 to 35,438 in 1962, a decline of 4·5 per cent. It is, of course, a matter for considerable satisfaction that this has occurred although apart from a reduction in the number of new immigrants the circumstances to which the increase was attributed seem to have undergone no change. Nevertheless, the figure for 1962 is considerably higher than that for 1939 (31,300) and in recent years has been exceeded only in 1961, in 1946 (47,343) and in 1947 (36,666). As in preceding years, multiple infections have increased the total. The figures indicate cases and not patients so that any patient who contracts gonorrhoea more than once in one calendar year and seeks treatment at a clinic appears in the records as a separate case on each occasion. Table V indicates the importance of this fact in increasing the number of cases returned from seven large clinics, four of these in London and three in the provinces.

TABLE V  
Gonorrhoea 1962

|                                            | Cases |         | Patients |         |
|--------------------------------------------|-------|---------|----------|---------|
|                                            | Males | Females | Males    | Females |
| St. Mary's Hospital, London ... ..         | 2,759 | 629     | 2,407    | 555     |
| General Hospital, Birmingham ... ..        | 1,813 | 478     | 1,433    | 403     |
| The London Hospital ... ..                 | 1,669 | 442     | 1,338    | 361     |
| St. Luke's Clinic, Manchester ... ..       | 1,530 | 427     | 1,289    | 402     |
| St. Peter's and St. Paul's Hospital ... .. | 1,317 | 169     | 1,040    | 157     |
| St. Thomas Hospital ... ..                 | 938   | 267     | 909      | 253     |
| General Hospital, Newcastle-on-Tyne ... .. | 295   | 101     | 278      | 94      |

The contribution of immigrants to the total number of infections with gonorrhoea remains very large. A further study by the Co-operative

Chemical Group of the Medical Society for the Study of Venereal Disease, for the year 1961, was again based on information obtained from 150 clinics in England and Wales. The number of cases reviewed was 24,371 in males and 6,500 in females, amounting to a total of 30,871 and comprising 82.3 per cent. of the cases in males and 85.7 per cent. of those in females reported from the whole of England and Wales. The figures showed a concentration of cases in the larger towns and cities, especially in London where no less than 67.3 per cent. of the cases in males and 61.1 per cent. of those in females were treated. Male immigrants were responsible for 52.8 per cent. of the cases in males, in this series, as compared with 47.2 per cent. in males born in the United Kingdom. West Indians made up 27.3 per cent. of all cases in males and 6.8 per cent. were from Asia. A comparison with earlier studies showed that the proportion of cases in West Indian males had risen from 3.0 per cent. in 1952 to 27.3 per cent. in 1961. Of cases in the females, 82 per cent. affected women born in the United Kingdom; 9.8 per cent. were in West Indian women and 8.2 per cent. affected women from other countries. The proportion of cases in West Indian females had increased from 0.5 per cent. in 1952 to 9.8 per cent. in 1961.

Investigation of the ages of patients in this study showed that males aged 15 to 19 years were responsible for 6.3 per cent. of the cases in males but the proportion of those born in the United Kingdom was 60.5 per cent., so it appeared that boys and young men from abroad were making an appreciable contribution to the number of infections in this age group. On the other hand, girls and young women aged 15 to 19 were responsible for 25.8 per cent. of the cases in females and of these 85.2 per cent. were born in the United Kingdom. Promiscuous girls and young women of this age may be responsible for considerable spread of venereal disease. The Area Director of the Venereal Disease Service of the Wessex Region has described how "wandering bands" of "teenage girls" moved into his area following large influxes of labour introduced for building sites or road schemes. A group from the Midlands, and Birmingham in particular, was responsible for a significant increase in gonorrhoea in the early part of 1961. Later a similar group came from the London area. The reverse process seems also to occur. The Adviser in Venereology to the Manchester Regional Hospital Board has reported on the effect of immigration on the incidence of gonorrhoea among adolescent females in the peripheral areas of his region. Male immigrants began to appear in some of the sixteen peripheral clinics in the region in about 1959 but their numbers did not become significant until 1961. The four clinics with the largest numbers of immigrants showed increases in cases of gonorrhoea in males in 1961. If this had not occurred the total cases of gonorrhoea for 1961 at the 16 clinics would have been less than in 1955. Three of these four clinics also showed the largest increases in infections in adolescent females in 1961. The presence of immigrants in a locality seemed to lead, both directly and indirectly to an increased incidence of gonorrhoea in both sexes.

The consultant venerologist at H.M. Prison, Holloway, reported that in 1962 the incidence of gonorrhoea among prostitutes admitted to the prison remained high. The number of women known to be prostitutes admitted in 1962 was 582, as compared with 537 in 1961. Of 534 prostitutes who submitted to examination, 112 (21 per cent.) were found to be suffering from gonorrhoea. Some of the prostitutes were admitted more than once

and some were found to be infected on more than one occasion, the total number of admissions being 980 and the total number of infections 120. In 1962, 143 (24.5 per cent.) of the prostitutes were aged 15 to 20 years and 205 (35 per cent.) 21 to 25 years. Of those aged 15 to 20, 133 were examined and 35 (26 per cent.) were found to be suffering from gonorrhoea. In the course of the year five of these girls were found to be infected on more than one occasion, the total number of infections in this group being eleven. As in previous years it seemed certain that this was only part of the truth, because of the difficulty of establishing a diagnosis of gonorrhoea in the cases of many women, especially those who practise douching and who remain under observation for insufficient time to permit adequate testing.

### **Other Venereal Diseases**

Apart from non-gonococcal urethritis, these remain small problems. The number of new cases of chancroid declined from 228 in 1961 to 157 in 1962. Cases of lymphogranuloma venereum amounted to 96 in 1962 as compared with 98 in 1961. Cases of granuloma inguinale were 16 in 1962 as compared with 14 in 1961. Non-gonococcal urethritis in males showed an increase but for the first time since these cases were reported in a separate category in 1951 the increase was slight. The total rose from 24,472 in 1961 to 24,494 in 1962. The difficulty of making this diagnosis in females has been discussed on a number of occasions. Because of this difficulty female consorts of men with non-gonococcal urethritis are likely to be included among "other conditions requiring treatment", which in females increased from 16,861 in 1961 to 17,058 in 1962.

### **Other Conditions Treated at the Clinics**

The importance of the service given at the clinics in reassuring anxious patients and in excluding infection in those who have taken risks has been emphasized repeatedly. In Table A of Appendix C it is shown that during 1962 there were 36,217 such cases in which active treatment was required for non-venereal conditions, as compared with 35,423 in 1961, and 37,784 in which, after investigation, only reassurance was necessary, as compared with 39,689 in 1961.

### **The Present Position**

Those concerned with the control of venereal diseases, who have been under considerable pressure in recent years, will derive encouragement from the fact that the numbers of cases of gonorrhoea have at last shown some diminution and that the increase in non-gonococcal urethritis is less marked. The decrease of gonorrhoea is, however, small and gives no cause for complacency. The number of cases of infectious syphilis has shown a very slight rise but by the standards of other countries this part of the problem remains very small. It is reasonable to hope that present control measures are having an effect but the need is to increase rather than to relax effort. As regards gonorrhoea, there is no clear indication of the factors responsible for the degree of improvement which has occurred. Further study of the social and medical implications of this change may perhaps point to the measures by which greater success can be achieved. It seems unlikely that a decrease in the number of new immigrants during the year under review has been an important factor

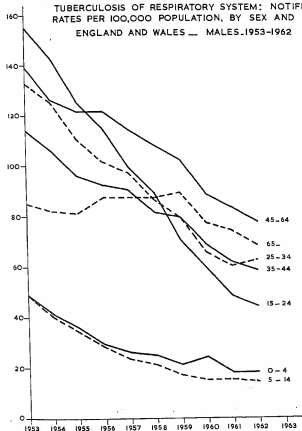
for there was evidence of some improvement before that date. The decrease has not occurred among immigrants otherwise it might have been thought to be due to their achieving more settled social circumstances. If there has been less promiscuity among adolescents it may be that the greater publicity which has been given to the subject and the greater concern which they and their elders have shown has produced some response. If this is true, the need is to secure still further improvement of public understanding and to improve the quality and scope of health education. A recent study at a clinic in the East End of London seems to point the way to a most important sphere of educational activity. During the period October to December, 1961, 225 men attended for examination because they had taken risks and were anxious. In fact none were found to be suffering from infectious disease. To obtain comparable figures for women it was necessary to draw on the whole of 1961 and 1962 during which period 198 women, of whom 124 (62.5 per cent.) were aged 15 to 24 years, attended of their own accord although they had no symptoms. Of the 198, 124 were found to be suffering from gonorrhoea and 23 from other genital infections. It is of course well known that the considerable majority of women suffering from gonorrhoea, or some other genital infections, have no symptoms or only minor symptoms which are insufficient to attract attention. In a recent investigation, also in the East End of London, it appeared that of 100 women suffering from gonorrhoea only 22 attended because of symptoms. Almost all the others came because their consorts were infected and for that reason only. If there has been a change in the pattern of sexual behaviour it does not appear to be accompanied by an understanding among young women of the risks and of the fact that venereal disease is usually symptomless in women. Sexually promiscuous girls and young women are the most persistent transmitters of disease to their sexual partners who, if also promiscuous, are likely rapidly to add to the total of infected women. The most promising method of breaking this chain of transmission is to persuade sexually casual girls and young women to attend clinics regularly for tests, whether they have symptoms or not. They should be told that the doctors at the clinics, some of whom are women, will treat their patients with gentleness and courtesy and that there is no risk of disclosure. Examination and treatment are painless and the cure of gonorrhoea is rapid and certain. In disseminating this information medical officers of health can play an important part; so also can all those who undertake statutory, professional or voluntary responsibility for girls and young women. A most important part can be played by family doctors. In the past many general practitioners have felt that this problem was not their direct concern, because most of their patients who required advice on such a subject were diffident about raising this problem with their own doctors and preferred to go direct to a clinic. But times and attitudes are changing and it is likely that patients will tend more and more to seek advice on these matters from their usual medical advisers. It is to be hoped that the memorandum entitled "Venereal Disease Service" prepared by the Standing Medical Advisory Committee for the Central Health Service Council and the Minister of Health and sent to all general practitioners in July, 1962, will serve to stimulate interest and help family doctors to play a larger part in the control of these infections.

# V TUBERCULOSIS

Tuberculosis has been one of the greatest of medical problems through the centuries and to review it over so short a period as ten years may appear to take but a very limited view. Nevertheless, these ten years in England and Wales have seen the introduction on an increasing scale of B.C.G. vaccination and the cumulative results of treatment with specific drugs.

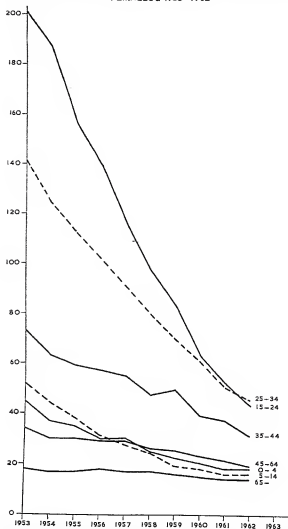
Two graphs below depict notification rates per 100,000 of the population by sex and age for the years 1953-1962. There are some striking

TUBERCULOSIS OF RESPIRATORY SYSTEM: NOTIFICATION  
RATES PER 100,000 POPULATION, BY SEX AND AGE.  
ENGLAND AND WALES — MALES 1953-1962



TUBERCULOSIS OF RESPIRATORY SYSTEM: NOTIFICATION RATES PER 100,000 POPULATION, BY SEX AND AGE, ENGLAND AND WALES

FEMALES - 1953-1962

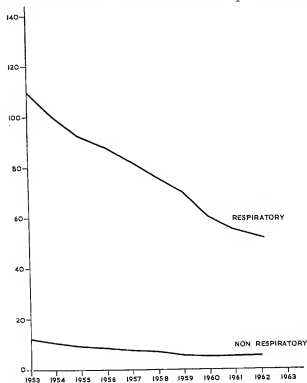


differences between the rates for the different sexes. Ten years ago both male and female rates were high in the 15-24 and 25-34 age groups;

both have been much reduced. In 1962 the highest rates among men are for the ages above 45 while for women they remain as before, the 15-24, 25-34 groups. In 1953 the age specific rates for women ranged from 18 to 201, for males 49 to 155; in 1962 they range for men from 14 to 77 and for women from 14 to 45. The especially encouraging feature is the steep decline for the age groups 15-34, for which two factors must be relevant—the greatly reduced prevalence of patients with positive sputum and so of opportunities of infection in adolescence and the numbers of adolescents and young adults protected by B.C.G.

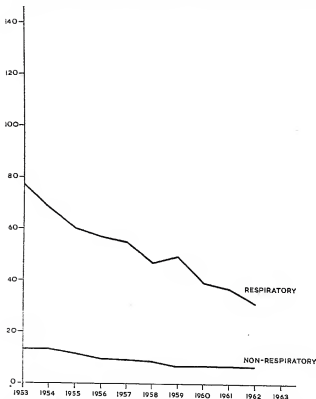
Two further graphs show notification rates per 100,000 by sex for all ages for non-respiratory and respiratory tuberculosis separately. In both, the curves for non-respiratory disease have flattened out.

**RESPIRATORY AND NON RESPIRATORY TUBERCULOSIS: NOTIFICATION RATES PER 100,000 POPULATION BY SEX: ALL AGES — MALES**



The epidemiological attack must continue along the lines stated in the 1961 Report; the graphs indicate where control measures are most needed.

RESPIRATORY AND NON RESPIRATORY TUBERCULOSIS: NOTIFICATION  
RATES PER 100,000 POPULATION, BY SEX: ALL AGES— FEMALES,



Eradication of tuberculosis must be the aim, but it remains a long process since so many adults, infected in earlier life, must still retain the possibility of developing tuberculous disease in later life. Succeeding generations, especially those now aged under 25, who have not suffered a natural primary infection may expect to see virtual elimination of a disease which was an ever present menace to their predecessors.

#### Notification

Notifications declined by 5·7 per cent. compared with 1961, being 20,519 against 21,747. The decline for males was only 3·4 per cent. against 9·3 per cent. for females: Respiratory notifications at 17,845 were 6·3 per cent. less and non-respiratory at 2,674 only 0·8 per cent. less. The detailed breakdown by ages is given in the following tables:—

*Number of Primary Notifications of New Cases of Respiratory Tuberculosis  
in England and Wales: 1962*

| Age Period<br>Years        | Not<br>known | 0- | 1- | 2-  | 5-  | 10- | 15- | 20- | 25-   | 35-   | 45-   | 55-   | 65-   | 75- | Total<br>all<br>ages |
|----------------------------|--------------|----|----|-----|-----|-----|-----|-----|-------|-------|-------|-------|-------|-----|----------------------|
| Respiratory<br>(males) ... | 4            | 40 | 83 | 224 | 258 | 219 | 505 | 923 | 1,797 | 1,888 | 2,079 | 2,275 | 1,079 | 375 | 11,749               |
| Respiratory<br>(females)   |              | 47 | 64 | 223 | 221 | 292 | 574 | 784 | 1,266 | 1,000 | 662   | 489   | 312   | 162 | 6,086                |

*Percentage Decline in Respiratory Notifications 1961-62*

| 0-14 years |        | 15-24 years |        | 25-44 years |        | 45 years and over |        |
|------------|--------|-------------|--------|-------------|--------|-------------------|--------|
| Male       | Female | Male        | Female | Male        | Female | Male              | Female |
| 3.2        | 1.6    | 3.0         | 12.4   | -0.9        | 13.3   | 7.1               | 9.5    |

*Mortality*

Deaths from all forms of Tuberculosis in 1962 numbered 3,088 (3,334 in 1961) a fall of 7.3 per cent. on the previous year. Of these, 2,637 occurred among men and women aged 45 and over.

The Standard Mortality Ratio, based on the years 1950-52 as 100, was 22 compared with 24 in 1961 and 103 in 1951.

*Tuberculosis—Local Authority Areas*

Notifications per 100,000 of the population for Local Authority Areas in England and Wales are given in Table XX of Appendix B. Notification of non-respiratory tuberculosis per 100,000 of the population is very low in a number of areas and it is a question whether in fact cases of non-respiratory tuberculosis are notified as regularly as respiratory tuberculosis. Authorities making a nil return may consider whether this does represent the true picture, since infection with the human bacillus still persists.

Notifications of respiratory tuberculosis are given both for 1962 and for the average of the previous five years 1957-61. In a few areas the notification of respiratory disease in 1962 exceeds the average of the previous five years but in most there is a substantial improvement. In England and Wales as a whole the average of respiratory notifications 1957-61 was 52.6 and for 1962, 38.24.

*B.C.G. Vaccination*

Vaccination for nurses, students, contacts and schoolchildren continued as in recent years. Some 63 thousand contacts out of 104 thousand tested were vaccinated. Among the schoolchildren 579,625 were skin tested, 90,191 were found to be positive and 473,211 negative. There were 432,443 vaccinations. It appears that of those who completed the tests 16 per cent. were positive. The number vaccinated represents about 72 per cent. of the 13 year old schoolchildren but of course not all those vaccinated will have been of this age since vaccination is now encouraged over a wider age range than in the early days of the Schoolchildren B.C.G. programme. However, the great majority of children vaccinated will have been in the 13 year old group and the figures do suggest that a reasonably high rate of vaccination is being achieved.

### *Chest Clinics*

New cases of tuberculosis or suspected tuberculosis are referred to the Chest Clinics for investigation, treatment and supervision. Those for whom a definite diagnosis of tuberculosis is established are notified to the Medical Officer of Health under The Public Health (Tuberculosis) Regulations, 1952 and from returns made to the General Register Office the numbers of notified cases by sex and age are available. Chest Clinics have hitherto made returns relating to notified cases but for the year 1962 have been asked to number those attending the clinic because they have had tuberculous infection whether they have been notified or not.

In 1961 the number of new cases of tuberculosis attending the Chest Clinics was 21,000. Under the new return for 1962 the number of new cases attending the Chest Clinics who in the opinion of the chest physician required treatment or supervision for a tuberculous condition was 27,000; both figures are given to the nearest thousand. This figure of 27,000 must include some 6,000 patients who are not suffering from active tuberculosis requiring treatment and are not infectious, but remain under observation lest breakdown should occur.

The total of tuberculous cases listed as attending the clinics for treatment or supervision remains over 310,000.

The number of cases whose broncho-pulmonary secretion was found to be positive during the year was 11,733. This figure no longer omits, as in previous years, those who were at the time in an institution, since many of them will have been positive before admittance.

It cannot be claimed that all cases of tuberculosis come to the notice of chest clinics but with improving diagnostic facilities it is to be expected that the percentage of tuberculous cases remaining undetected within the community is steadily diminishing. Those who have been detected and are under the care of the chest physician will give a measure of our present tuberculosis burden.

### *Chest Radiology*

The Chest Radiology Service is well established and is an accepted and important part of the diagnostic facilities offered by the National Health Service. Although it would be of great interest to assess its worth in terms of the amount of disease it brings to light, this is not practicable because many patients are referred by their general practitioners to chest clinics or X-ray departments, as well as to Mass Radiography Units, static or mobile, and to separate them from the many other patients attending would be impossible.

To determine how valuable the service is we rely therefore on the returns from one section of it. They come, as in previous years, from the Mass Radiography Service and of necessity because of the time which elapses between the taking of an X-ray and the final diagnosis often only made after a period of observation, they are delayed.

Tables XXI and XXII record the findings of the Mass Radiography Service for 1961. Approximately 3,180,000 persons were X-rayed, an increase of nearly 50,000 over 1960 and 4,473 cases of tuberculosis requiring treatment

or close clinic supervision were discovered (4,938 in 1960) or 1.4 per thousand examined (1.6 in 1960).

General practitioners' referred cases always show a high return in terms of tuberculosis. In 1960 among 194,560 referrals 1,561 cases requiring treatment or close clinic supervision were detected and in 1961 the figures were 218,660 and 1,532 the rates being 8.0 per 1,000 and 7.0 per 1,000. As suggested above, these figures are not indicative of the total number of patients referred for chest radiology by their practitioners and similar rates most probably hold for those referred to chest clinics and hospitals for radiography.

The two largest groups examined by Mass Radiography are the volunteers from Factories and Offices. There were 1,770,240 in 1961 and 1,780,600 in 1960. Case rates were 0.9 and 1.0. The volunteers from the general public in 1961 were 928,990 and 845,260 in 1960 with the rates of 1.1 and 1.2. The overall rates for all examinees were 1.4 in 1961 and 1.6 in 1960.

Table XXI lists some of the non-tuberculous conditions which are found by the Mass Radiography Units. Malignant neoplasms found in 1961 were males 2,295 and females 382; compared with 1960 males 2,199 and females 335. It will be seen how many of these come from the general practitioner referrals, as in previous years, whereas the cases of sarcoidosis [males 343 and females 361 (1961); males 314 and females 301 (1960)] are mainly found among those attending from factories, offices and the general public, many being presumably still without symptoms.

In the report of last year the six main factors of the programme which will be required to make further improvement in the tuberculosis situation in this country were set out. The first of these was full use of a comprehensive chest diagnostic radiology service. This brief account of part of that service lends emphasis to that view.

### *Central Register of Drug Resistant Cases*

Following a recommendation of the Standing Tuberculosis Advisory Committee the Tuberculosis Reference Laboratory at Cardiff has collaborated with the Statistics Branch of the Ministry to set up a central register which will record and follow up details of cases of tuberculosis from whom tubercle bacilli have been grown which show significant drug resistance to the standard drugs, Isoniazid, Para-aminosalicylic Acid and Streptomycin.

It is not intended that the central register should replace local registers, where they are kept, but it is hoped it will provide a great deal of useful information about the overall incidence, pattern and distribution of drug resistance.

Three types of case are being referred to the Cardiff Laboratory which is making confirmatory tests.

- (i) Those in which tubercle bacilli show resistance to standard drugs on primary isolation.
- (ii) Those in which tubercle bacilli appear to be developing resistance during treatment at home or in hospital.
- (iii) Those in which a positive sputum or culture persists after six months treatment with standard drugs but in which drug sensitivity is apparently normal or is not known.

## VI MATERNAL AND CHILD HEALTH

### *Maternal Mortality*

Deaths of mothers due to child-bearing and abortion have now reached such low numbers that year to year fluctuations may be of little significance. The total annual deaths in the past decade are set out below.

| 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|------|------|------|------|------|------|------|------|------|------|------|
| 463  | 495  | 446  | 405  | 374  | 333  | 328  | 290  | 310  | 274  | 299  |

Nevertheless an increase in both the actual number of deaths, and the death rate compared with 1961 calls for comment. In 1961, the maternal death rate per 100,000 total (live and still) births was 33, and in 1962, it was 35.

Deaths ascribed to ectopic pregnancy increased markedly during 1962 for no apparent reason disturbing a general downward trend since 1953. Deaths attributed to this cause during the past decade are shown below.

| 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|------|------|------|------|------|------|------|------|------|------|------|
| 19   | 35   | 24   | 20   | 21   | 21   | 13   | 12   | 17   | 12   | 22   |

Deaths due to puerperal pulmonary embolism increased in comparison with 1961 which probably provided a chance low figure.

Deaths in this group are to be the subject of a more searching scrutiny in the confidential enquiry into maternal deaths in England and Wales.

During the past decade the figures have been :

| 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|------|------|------|------|------|------|------|------|------|------|------|
| 25   | 22   | 13   | 23   | 5    | 8    | 17   | 11   | 8    | 1    | 9    |

The increases attributed to these two causes are sufficient to account for the rise in the rate. There are fluctuations in almost all the figures in the various categories of deaths of mothers due to child-bearing and abortion. The only other one of note is due to sepsis in the puerperium which rose from 4 in 1961 to 9 in 1962.

The rate of decline in maternal mortality has become smaller during the past decade, and an interruption in the downward trend in 1962 is a clear warning that we cannot yet feel complacent about our maternity services.

Moreover the reports of the confidential enquiries show well that further material reductions are possible.

## The Rising Birth Rate and its Effect on the Maternity Services

### *Present position*

The birth rate after dropping during the second decade of this century remained about 15 live births per 1,000 population i.e. around 600,000 live births a year. During the war the rate declined but during the post war period it rose sharply reaching a peak in 1947 of 880,000 births and a birth rate of 20.5 per 1,000. Gradually the birth rate subsided again until it reached its lowest level in 1955 when it was 15.0 live births per 1,000 population or 670,000 live births. In 1956 the Maternity Services (Cranbrook) Committee was appointed. As can be seen from Table I the birth rate slowly began to rise so that in 1958 when the Cranbrook Committee reported the birth rate was 16.4 and the number of live births were 740,000. This rise has continued and has become steeper in the last few years and in 1962 the rate was 18.0 and the number of live births were 840,000. This means there was an increase of 170,000 births in the number of live births in the eight years between 1955-1963.

*Table I shows the live births and the birth rates for 1955-1962*

|      |     | Number of registered<br>live births | Birth rate per<br>1,000 population |
|------|-----|-------------------------------------|------------------------------------|
| 1955 | ... | 667,811                             | 15.0                               |
| 1956 | ... | 700,335                             | 15.6                               |
| 1957 | ... | 723,381                             | 16.1                               |
| 1958 | ... | 740,715                             | 16.4                               |
| 1959 | ... | 748,501                             | 16.5                               |
| 1960 | ... | 785,005                             | 17.1                               |
| 1961 | ... | 811,281                             | 17.6                               |
| 1962 | ... | 838,736                             | 18.0                               |

Normally there are more births during the first half of the year compared with the second half which always leads to extra pressure on the maternity services. In 1962 not only was there an increase in the number of births but most of the increase occurred during the first quarter of the year. This is shown in Table II.

*Table II : Live births per quarter 1958-62*

|      | First<br>Quarter | Second<br>Quarter | Third<br>Quarter | Fourth<br>Quarter | Total   |
|------|------------------|-------------------|------------------|-------------------|---------|
| 1958 | 189,942          | 189,019           | 180,266          | 181,488           | 740,715 |
| 1959 | 193,202          | 194,103           | 185,684          | 175,512           | 748,501 |
| 1960 | 197,614          | 200,374           | 196,674          | 190,343           | 785,005 |
| 1961 | 204,107          | 207,540           | 203,266          | 196,368           | 811,281 |
| 1962 | 213,590          | 216,914           | 208,971          | 199,261           | 838,736 |

As well as the rise in the number of births there has been an increasing demand for hospital confinement. The Cranbrook Committee suggested that the proportion of institutional confinements should be increased from 64 per cent. to 70 per cent.

*Table III : Number of notified births according to place of confinement  
1958-1962*

| Year        | Domiciliary | Per cent. | Institutional | Per cent. |
|-------------|-------------|-----------|---------------|-----------|
| 1958 ... .. | 270,374     | 36        | 487,016       | 64        |
| 1959 ... .. | 270,302     | 35        | 492,992       | 65        |
| 1960 ... .. | 280,826     | 35        | 518,884       | 65        |
| 1961 ... .. | 281,155     | 34        | 544,718       | 66        |
| 1962 ... .. | 288,159     | 34        | 564,855       | 66        |

Table III shows that the numbers of both domiciliary and institutional births have both increased, the hospitals having taken a very slightly larger share of the increase.

#### *Future trends*

Projections of the future number of births per year in each year depend upon the average family size desired by married couples and the number of such couples who are still in the process of building their families. The current trend towards earlier marriage and a somewhat faster family building are changes of timing which are having a considerable effect on the annual flow of births. These last mentioned changes may mean that births that would otherwise have taken place later on are being brought forward in time and quite a large part of the current rise in births may be attributable to this borrowing from the future unless family size also increases, and that we cannot know yet.

The Ten Year Hospital Plan was based on projections, made in 1960 for 1975, of 818 thousand live births. The latest projections from the General Register Office suggest that there are likely to be 875,000 live births in 1967, 885,000 in 1972 and 891,000 in 1975 and the Plan has had to be revised accordingly.

Paige (1962) forecast at least 920,000 live births in 1970. Paige based her figures on the assumption that marriage rates in the youngest age groups would go on rising and that fertility rates will increase. There must remain considerable uncertainty in these forecasts and no building programme can fluctuate from year to year or indeed produce rapid short term changes. It is possible to meet unforeseen increases to some extent by minor variations in medical practice, as for instance a marginal adjustment of the length of stay after confinement provided the average has not been too far reduced already. The provision of extra staff, especially midwives may well be more difficult, both in hospital and for after care at home.

#### *Short-Term Plans*

There has been a slight increase in the number of obstetric and general practitioner maternity beds since 1955, when there were 19,583 beds, compared with 20,420 in 1962. Nevertheless the increase in the beds has not kept pace with the extra number of births, coupled with the very slight

increase in the proportion of confinements in hospital. Also, during this period more of the beds have been used for the care of patients needing inpatient antenatal care. Most of this increased work has been made possible by a gradual reduction of the length of stay of mothers in hospital. In 1955 the average stay in hospital (including antenatal and postnatal patients) was 12.0 days. In 1962 it was 9.4 days. Whilst every effort to provide extra beds to meet this increased demand during the interim period before the implementation of the Hospital Plan will be made, it is probable that planned discharge from hospital either very early, i.e. 48 hours after delivery or perhaps after a week or more in hospital, will be necessary in many areas. Already the analysis of the Hospital In-Patient Enquiry returns has shown that the proportion of postnatal cases discharged on or before the seventh day increased from 7.3 per cent. in 1955 to 18.9 per cent. in 1959. It is important, however, that early discharge should be planned in advance so that the mother, the general practitioner and the local health authority can make the necessary arrangements for the mother to continue receiving care during the lying-in period in her own home. The provision for maternity beds in the Hospital Plan was based on the Cranbrook Committee recommendations of a 10-day stay after confinement with a 70 per cent. institutional confinement rate and enough antenatal beds for 20 to 25 per cent. of the total births in the area. To provide beds to these standards for a total of 818,000 confinements in the country required 0.58 maternity beds per 1,000 population, compared with 0.48 at present provided.

The number of beds in maternity departments when the Hospital Plan was drawn up was 20,531. The plan envisaged the provision of 12,451 new beds with the closure of 5,869, representing an increase of 6,582 beds.

Following the completion of revised regional forecasts by the General Register Office, Regional Hospital Boards have been asked to review the number of maternity beds which have been planned for 1975 and to take steps both to expedite new provision and to make more effective use of existing beds.

There are wide differences of view about many of the professional questions involved—particularly about the length of stay in hospital, the part to be played by the domiciliary services and the respective functions of obstetricians, general practitioners and midwives. The only way of resolving these is by local discussion and agreement on the best use of the facilities of the area. The increasing activity of some local Maternity Liaison Committees is therefore welcome. The Bradford scheme for selective, planned, early discharge was the result of such a local attempt to make the best use of all local resources in dealing with a difficult situation.

### Home and Institutional Confinements

Table IV shows the distribution of live and stillbirths in 1961 analysed according to the place of confinement, age and parity of the mother. These figures are not available in time for inclusion in the report for the year. It can be seen that overall 65.59 per cent. of all women had their babies in hospital. Of those expecting their first baby 83.84 per cent. had them in a hospital including 87.9 per cent. over the age of 35 years. It has long been recognized that it is advisable for certain groups of mothers to have

their babies in hospital and this includes all women over the age of 35 years and those expecting their fifth or later child. Unfortunately, it is the grand multiparae who least wish to go to hospital. From these tables it can be seen that only 55.56 per cent. of these women in fact had their babies in hospital including 61.11 per cent. over the age of 35 years. However, there has been some improvement since 1960 when 52 per cent. of all women who had borne four or more babies had their confinement in hospital including 57 per cent. over the age of 35 years.

TABLE IV

*Births, including stillbirths, which occurred (together with their Percentage Distribution) in England and Wales in 1961*

*Analysis of Births in Hospital and at Home\* by Age and Parity of mother*

| Age Group         | Total              |                    | Number of previous Liveborn Children |                   |                    |                    |                   |                   |
|-------------------|--------------------|--------------------|--------------------------------------|-------------------|--------------------|--------------------|-------------------|-------------------|
|                   |                    |                    | 0                                    |                   | 1-2-3              |                    | 4+                |                   |
|                   | Hospital           | Home               | Hospital                             | Home              | Hospital           | Home               | Hospital          | Home              |
| All ages ...      | 542,442<br>(65.59) | 284,566<br>(34.41) | 281,823<br>(83.84)                   | 54,317<br>(16.16) | 223,846<br>(52.71) | 200,833<br>(47.29) | 36,773<br>(55.56) | 29,416<br>(44.44) |
| Under 25 years    | 224,407<br>(71.39) | 89,924<br>(28.61)  | 166,305<br>(83.04)                   | 33,956<br>(16.96) | 57,237<br>(50.95)  | 55,111<br>(49.05)  | 865<br>(50.23)    | 857<br>(49.77)    |
| 25-34 years ...   | 247,788<br>(60.75) | 160,099<br>(39.25) | 100,152<br>(84.69)                   | 18,105<br>(15.31) | 129,480<br>(50.93) | 124,738<br>(49.07) | 18,156<br>(51.27) | 17,256<br>(48.73) |
| 35 years and over | 69,817<br>(67.07)  | 34,272<br>(32.93)  | 15,035<br>(87.91)                    | 2,068<br>(12.09)  | 37,043<br>(63.91)  | 20,914<br>(36.09)  | 17,739<br>(61.11) | 11,290<br>(38.89) |
| Not stated ...    | 430<br>(61.34)     | 271<br>(38.66)     | 331<br>(63.78)                       | 188<br>(36.22)    | 86<br>(55.13)      | 70<br>(44.87)      | 13<br>(50)        | 13<br>(50)        |

\* The figures for births in hospital include those in non-N.H.S. hospitals, many of which are maternity homes. The columns headed "Home" include births occurring in homes for unmarried mothers, remand homes, reception centres, etc.

### Congenital Abnormalities associated with Thalidomide

Thalidomide, a sedative drug of German manufacture became available in this country in 1958, and because it was considered safe as well as useful it was freely used for expectant mothers until late in 1961 when its association with congenital limb deformities was suspected. It was particularly popular in Germany itself where it was available without prescription.

It was at a paediatric conference on 18th November, 1961 that Lenz of Hamburg raised the possibility that the taking of thalidomide by the expectant mother during the early months of pregnancy, particularly during the 4th-6th weeks after conception, might have harmful effects upon the developing embryo. He had been concerned by the large increase in the numbers of children referred to his clinic during the past couple of years showing the sort of congenital malformation usually associated with damage during the 28th-42nd day after fertilization, i.e., reduction deformities of the limbs, malformation of the ears and eyes, defects of the heart and kidneys

and deformities of the alimentary system. Defects of the central nervous system were conspicuously absent, and the affected children appeared to possess normal intelligence.

At the beginning of December, 1961, the firm which marketed thalidomide in this country wrote to the principal medical journals, (e.g. Hayman, 1961), that following reports from two overseas sources of the possible association of deformities in babies from the mother's intake of the drug early in pregnancy, and pending further investigation, they were withdrawing it from distribution. The following week, McBride (1961) wrote from New South Wales that he had observed nearly 20 per cent. of congenital deformities in the babies of mothers given thalidomide early in pregnancy. He did not give numbers of affected babies, but he noted that the organs chiefly affected were the bones, leading to polydactyly, syndactyly and reduction deformities of the long bones, and also the musculature of the gut.

Lenz (1962a) said that he had seen 52 malformed babies thought to be associated with thalidomide and had received reports of 115 others. He estimated that probably some 2,000-3,000 babies affected by thalidomide had been born in West Germany since 1959. He described the following typical manifestations, "Defects of the arms (amelia, atypical phocomelia with absence of thumbs and sometimes of other fingers as well, aplasia of the radius, defects of the long bones of the legs, especially the femora and tibia, absence of the auricles, haemangiomas of the nose and upper lip (wine spot variety), atresia of the oesophagus, the duodenum or the anus, cardiac anomalies and aplasia of the gallbladder and of the appendix)". Pfeiffer and Kosenow (1962) reported that a paediatric team in North West Germany had set out to determine the true incidence and had registered 170 children. Their letter was illustrated with pictures of two typical cases. They noted, "We have seen a preponderance of defects of the upper limb, mostly symmetrical. Both sexes are equally affected. Malformations of other organs are often associated . . . but not of the nervous system or of the skull and spine". These two vivid clinical descriptions of the syndrome as it was originally encountered remain true of the cases subsequently reported in England and elsewhere. Lenz (1962b) later estimated that in half his cases only the arms were affected, in a quarter the arms and legs, and in one-sixth the ears were missing.

The first British reports of cases showing this typical group of deformities were published by Speirs (1962), a paediatrician from Stirling, reporting 10 cases, and by Kohler, Fisher and Dunn (1962) reporting 4 cases in which they commented on the likeness of their cases to the photographs from Munster mentioned above. Speirs, confronted by what for the area in which he worked virtually amounted to an epidemic and suspecting the possibility of a common causal factor, had interviewed 8 of the 10 mothers, seeking information about exposure to radiation, nutrition, infection and drugs, but without any positive results. When the withdrawal of thalidomide was announced, Speirs immediately started further investigations, with the result that he was able to verify from the evidence of recorded prescriptions that 8 of the 10 mothers had been prescribed thalidomide early in pregnancy, whilst another had taken an unknown sedative which may have been thalidomide. One of the 3 Birmingham mothers was also known to have

taken thalidomide. Burley (1962a, 1962b), medical adviser to the distributing firm, reported that, although records for two paediatric clinics in 1961 showed an association with thalidomide in about two-thirds of 31 cases with typical deformities, a retrospective survey among family doctors had indicated that over 700 mothers who had taken thalidomide in early pregnancy were delivered of normal babies. Unfortunately it has not since been possible to carry out a more scientifically planned survey of mothers known to have taken thalidomide during the critical 4th-8th weeks who later gave birth to normal babies.

The two next significant British reports on the subject came from Smithells (1962) of Liverpool, and Leck and Millar (1962) of Birmingham. Both papers offered evidence of incidence of cases in their respective localities. Smithells also provided valuable clinical information. On 1st January, 1960, Smithells had been instrumental in starting a register of congenital abnormalities relating to Liverpool and Bootle. This register showed an unexpected rise in congenital malformations of the limbs and external ears starting about July, 1960. Consulting the records of two large maternity hospitals in Liverpool he discovered that no cases of ectromelia had occurred during 1957 and 1958 and in 1959 only one case of phocomelia and one of radial hemimelia. During the same 3 years no cases of microtia had been reported. In the 18 months from the middle of 1960 until the end of 1961, the register showed 30 cases of ectromelia and 7 cases of microtia. There were also 22 cases of lesser limb deformities in which the long bones were normal.

Analysis of the 30 cases of ectromelia showed that 11 were stillborn or died soon after birth, a perinatal mortality rate of 37 per cent. Males outnumbered females by almost 2:1. All four limbs were involved in 13 cases, arms only in 10 cases, legs only in 5 and a single limb in 2 cases. 12 babies showed additional malformations, renal and intestinal abnormalities being the most common. Of the 7 cases of microtia, 2 showed other abnormalities, one having syndactyly and another a heart lesion.

Smithells read his paper at the annual conference of the British Paediatric Association in April, 1962. By the time the article was published in June, preliminary steps had already been taken to discover not only the number and geographical distribution of children with limb deformities, but also to find out what was being done to treat the children and to help their parents. Thereafter events moved rapidly. A number of voluntary agencies offered help and two parents' associations were formed. The research section of the limb fitting centre at Roehampton reviewed the arrangements for providing infant prostheses, particularly for upper limbs, and circulated a memo of guidance to the other centres. It soon became apparent that most of the affected children were being cared for at home under the supervision of local paediatric or orthopaedic units but one or two hospitals, notably Chalely Heritage in Sussex and later Queen Mary's, Carshalton, had admitted for inpatient treatment, children who for any reason could not be cared for at home.

Wigglesworth (1962 a and b) described his experience in treating a child then aged 5½ years (who had therefore been born before thalidomide was

available) but who showed similar reduction deformities of all four limbs. His object in writing was to stress the desirability of gearing treatment and training towards meeting the timetable of normal development progress. His record of this case has proved of considerable clinical value.

"After the initial period of shock the parents accepted the baby well and the mother and child went home together after 14 days; follow-up in the paediatric clinic began at 1 month and the parents were given full support by the family doctor, the hospital service and the local authority services. At 4 months, the limb fitting centre was asked to undertake early fitting of artificial upper limbs in order to coincide with the normal development of upper limb approximation and learning, and the fitting of lower limbs to coincide with the normal learning of the standing position at 9 months . . . By the age of 1 year, she was approximating her upper limbs and would hold and pick up quite small objects. By 18 months she could turn the pages of books whilst her mother described the pictures to her . . . By 3 years she could eat a biscuit with little aid, could hold her dolls, and push back her hair from her face. She could take a single step on her own. Allowing her to push a weighted pram was a great incentive in getting her to walk. By 5 years she was allowed, as an experiment, to attend her local school. She is now learning to read, write and do sums . . . She gets on well with her younger brother and tends to be rather maternal towards him . . . The important factor contributing to this child's progress has been the parental acceptance of the child and the situation . . . I like to think this developed because the matter was correctly handled from the day of birth".

Quibell (1962), medical administrator of Chailey Heritage, mentions that he had 11 affected children in his care and noted the importance of full assessment of each child, by a team consisting of a paediatrician, orthopaedic surgeon and limb fitting surgeon, preferably about the age of 6-8 weeks, so that a co-ordinated plan of treatment might be agreed upon. He supported Wigglesworth's view about meeting the timetable of normal development. He laid particular emphasis on the need for parent counselling. "It takes time and great sympathy and understanding to appreciate their reactions: they must have a consistent and honest presentation and be given time to adjust".

Further experience of the various clinical aspects of the treatment and training of babies with skeletal deformities has confirmed the wisdom of these early observers in recommending early, full, expert assessment of every individual child in a centre to which the parents know they can return for help whenever necessary. The development of centres specializing in the fitting of powered limbs which occurred later is described elsewhere in this report.

### *The size of the problem*

On 1st August, 1962, a letter was sent to Medical Officers of Health in England and Wales asking them to submit details concerning children born with limb abnormalities of the kind attributed to thalidomide. The object of the survey was to make as accurate an assessment as possible of the likely demands for special hospital facilities.

Information was asked about all liveborn children with limb deformities born in 1960, 1961 and up to 31st August, 1962, whether there was evidence that the mother had taken thalidomide during pregnancy or not. In addition information was asked about children with abnormalities other than of the limbs where the mother was known to have or probably had taken thalidomide.

A quick preliminary analysis was made at the end of November to give some guidance on the size of the problem and the amount of care which was likely to be needed. Since then a more detailed analysis has been made of the information which was received and a summary is given below. These figures may not be complete for several reasons. The enquiry was retrospective and Medical Officers of Health could only obtain information about those children by a special enquiry through health visitors, midwives, family doctors, local hospitals, including maternity and paediatric departments. It is therefore likely that children born two years or more before the enquiry who had subsequently died might well have been missed. Equally well the amount of information on minor deformities was likely to vary according to the extent to which it was considered of importance. It is therefore likely that the figures are more accurate for the major deformities than for minor deformities and for living children than for those who subsequently died. Information was received on a total of 894 children of which 172 were known to have died. Table I shows the distribution according to the year of birth.

*Table I: Number of babies: Analysis by year of birth, distinguishing those alive and those dead when the survey record was completed*

| Year of birth                  | Total | Living | Dead | Not known whether alive or dead |
|--------------------------------|-------|--------|------|---------------------------------|
| Total: all babies ... ..       | 894*  | 695    | 172  | 27                              |
| Born in 1959 ... ..            | 13    | 12     | 1    | —                               |
| 1960 ... ..                    | 214   | 163    | 47   | 4                               |
| 1961 ... ..                    | 323   | 251    | 63   | 9                               |
| 1962 ... ..                    | 339   | 265    | 60   | 14                              |
| Date of birth not known ... .. | 5     | 4      | 1    | —                               |

\* Excluding two cases with mermaid deformities but no indication that thalidomide had been taken.

Table II shows the number of children analysed according to whether or not the mother is known to have taken thalidomide during pregnancy. It is very difficult in retrospect to know for certain what drug had been taken at least six months previously. Not only had records been destroyed but the survey had highlighted a number of patients who take drugs prescribed for friends or other members of their family or alternatively keep drugs prescribed for a previous illness and then use them indiscriminately. Thus cases where there was no indication that thalidomide was taken may be those cases in which it is just not known. Even among the cases where thalidomide was known to have been taken, it is not known whether the drug was actually taken during the period of sensitivity.

*Table II: Number of babies: Analysis by association with thalidomide, distinguishing those alive and those dead when the survey record was completed.*

| Indication that mother had thalidomide during the pregnancy | Total | Living | Dead | Not known whether alive or dead |
|-------------------------------------------------------------|-------|--------|------|---------------------------------|
| Total: all babies ... ..                                    | 894*  | 695    | 172  | 27                              |
| Mother certainly had thalidomide ...                        | 237   | 184    | 51   | 2                               |
| Mother probably had thalidomide ...                         | 112   | 78     | 31   | 3                               |
| No indication that mother had thalidomide ... ..            | 366   | 277    | 71   | 18                              |
| Mother had <i>not</i> had thalidomide ...                   | 165   | 146    | 16   | 3                               |
| Indication not clear ... ..                                 | 14    | 10     | 3    | 1                               |

(\*) See footnote to Table I.

Table III shows the number of babies alive at the time of the survey analysed according to the type of deformity and whether or not the mother took thalidomide. The table shows the preponderance of cases where the mother was known to have taken thalidomide among the children with one or more absent or vestigial limbs. In the remaining children the limb deformity ranges from half length limbs to very minor deformities of hands and feet. Information was asked about deformities other than limb on only those cases where the mother was known to have taken thalidomide or probably took it.

*Table III: Number of babies alive (\*) when the survey record was completed: Analysis by association with thalidomide, distinguishing those with type (a) limb deformities, others with limb deformities, others with non-limb deformities.*

| Indication that mother had thalidomide during the pregnancy | Total | Babies with limb deformities          |                       | Babies with no limb deformity | Type of limb deformity not known |
|-------------------------------------------------------------|-------|---------------------------------------|-----------------------|-------------------------------|----------------------------------|
|                                                             |       | Type (a) deformity of 1 or more limbs | No Type (a) deformity |                               |                                  |
| Total: all babies alive(*) ...                              | 722   | 116                                   | 547                   | 50                            | 9(†)                             |
| Mother certainly had thalidomide                            | 186   | 55                                    | 94                    | 33                            | 4                                |
| Mother probably had thalidomide                             | 81    | 18                                    | 46                    | 16                            | 1                                |
| No indication that mother had thalidomide ... ..            | 295   | 29                                    | 262                   | —                             | 4                                |
| Mother had <i>not</i> had thalidomide                       | 149   | 14                                    | 135                   | —                             | —                                |
| Indication not clear ... ..                                 | 11    | —                                     | 10                    | 1                             | —                                |

(\*) Including 27 presumed alive, but not recorded whether alive or dead.

(†) None recorded as having "multiple abnormalities".

The tables given here are only a summary of the finding in the enquiry. The total findings have been analysed in greater detail and will be published at a later date.

## *The care and treatment of the children*

Full assessment of the child's disabilities usually involves examination by a team of experts. Besides the family doctor, paediatrician and orthopaedic surgeon who are always concerned, the advice of an ophthalmologist, otologist or plastic surgeon may be required. When artificial limbs or special appliances are considered necessary, the parents are given an appointment for the child's examination, either at the nearest limb fitting centre, or, if necessary, at one of the centres specializing in the fitting of powered upper limb prostheses. Transport and residential accommodation for the mother and child are available if required. Chailey Heritage, Queen Mary's Carshalton, and Mary Marlborough Lodge, Nuffield Orthopaedic Centre continue to provide long-stay inpatient treatment and training for children who are unable to attend from home. Both these hospitals possess full educational facilities ranging from nursery class to grammar school sixth form level. A few children who have no families are in the care of voluntary children's societies which possess their own hospital schools. Wherever possible parents or guardians are encouraged to take their children home for weekends and holidays.

The parents have continuing need for understanding, sympathy, support and guidance from the beginning. The emotional shock inflicted by the birth of an abnormal child upon the obstetricians, paediatricians and nurses in attendance is usually severe, but for the sake of the parents they must quickly cope with their personal and professional feelings of dismay, since their own unhesitating attitude of acceptance, kindness and encouragement is vividly remembered and tends to set the tone not only for the willing, affectionate and constructive attitude of the parents, but also for the humane co-operation of relations and neighbours. The first emotions of the parents are likely to be compounded of shock, grief, disappointment, bewilderment, rebellion, despair and perhaps guilt. Unless they are allowed to express and gradually to resolve these natural feelings, their only defence may be to withdraw from an intolerable situation, leading to their complete, permanent rejection of the infant. Given sympathetic understanding and time to come to terms with their distress they can begin to develop compassion and love for their child. Experience has shown that when they are given support this willingness to accept the baby as he is and to plan hopefully for the future is usually manifest before the mother leaves the maternity hospital, but in a few cases months may elapse before the parents are able fully to accept the child or the situation, and during this period they may need the help of a psychiatrist or social worker. Fortunately most of the babies have proved to be of normal intelligence. They soon learn to make appropriate social overtures with their eyes and vocalizations and eager smiles, so that before long they are firmly established in everybody's affections. In fact their parents and nurses usually need more advice to prevent over-indulgence rather than under-stimulation and neglect.

Apart from the numerous individual medical problems of paediatric supervision, orthopaedic and plastic surgery and limb fitting, the day-to-day management of these children has presented a number of problems some of which still remain unsolved. For instance, owing to reduced body surface, they tend to perspire excessively. This leads to added difficulties

in the wearing of prostheses, and special care needs to be taken to prevent chafing and irritation. Garments must be specially designed to accommodate abnormally short limbs or prostheses so that the child's activities are not impeded. Clothing must be made of warm, yet light and porous materials, with fastenings that are easy to cope with. Outdoor clothing, in particular, should be designed to minimize the child's unusual appearance. The provision of suitable playthings which the child can look at, feel, move about and make noises with according to his developmental level requires considerable thought. Opportunities for physical activity and for gaining everyday experience of the people, animals and things in the world outside his home must be provided. Parents, particularly fathers, have been most ingenious in devising simple apparatus to encourage vigorous exercise, self feeding and self occupation.

Other problems will inevitably arise as the children grow older but there is every reason to hope that the majority will be able to follow a full programme of education and training, and later to undertake suitable employment.

### Phenylketonuria

In the Annual Report of 1960 the preliminary findings of the first Phenylketonuria Conference, arranged by the Medical Research Council, were described.

Following the decision reached at that Conference in 1960, the Ministry of Health asked Medical Officers of Health of local health authorities where paediatric and laboratory services were available, to consider undertaking, for the detection of phenylketonuria, routine screening tests of infants between 4-6 weeks of life.

At the end of May, 1962, replies to a circular letter showed that of the 145 local health authorities in England and Wales, 131 have introduced routine screening tests, 5 are planning schemes while 9 do not propose to do so.

The total number of tests recorded by 124 local health authorities who made complete returns was 864,599. The number of cases of phenylketonuria which were confirmed after reference to consultant paediatricians was 39. Seven local health authorities did not record figures for the number of tests made but only if a positive result was recorded—all their results were negative. Nineteen cases of phenylketonuria were detected by means other than routine screening tests, and are not included in the figure of 39.

The total figure for these screening tests can only be taken as an indication of the number of tests actually carried out by those local authorities who have recorded them. Consequently, the 39 confirmed cases of phenylketonuria cannot be regarded as indicating the incidence of phenylketonuria in the general population.

The tests were made by the health visitors either in the home or at the child welfare clinics. A number of Medical Officers of Health have referred to the considerable time involved in carrying out a satisfactory test. Frequently, repeated visits had to be paid to the home, and shortage of health visiting staff may be a factor in those areas where screening tests are not contemplated at present.

The final Report of the Conference has now been published (Medical Research Council, 1963). It is divided into four sections:—

- i. Detection.
- ii. Control of Treatment.
- iii. Diet.
- iv. Results of Treatment.

#### *i. Detection*

The Conference recommends that Local Health Authorities should be asked to continue to maintain and, if possible, expand their present programmes of routine screening tests. It states that no two affected children are alike in the exact age at which phenylalanine metabolites first appear in the urine, but phenylpyruvic acid is not usually detectable until the second or third week of life and in some cases not until the sixth week. Whether lasting harm results if treatment is delayed until the sixth week of life is as yet unknown, although it has been found that the levels of phenylalanine in the blood and of its products in the urine are not always related to the degree of subsequent retardation in development of intelligence. The Conference, therefore, recommends that a system of two tests should be employed to avoid all possibility of doubt: one to be carried out at about the 10th to 14th day of life and one later, preferably between the fourth and sixth week.

Particular attention is drawn in this Report to a special group of "high risk" children. These are babies born into families in which the possibility of phenylketonuria is already known. It is advised that these children should be referred for the determination of serum phenylalanine concentration at the ages of 7 days and about 21 days as well as having more frequent urine tests for phenylpyruvic acid.

The tests in common use involve the addition of reagents such as ferric chloride or dinitrophenylhydrazine to small samples of urine, or a modification of the ferric chloride test in which a paper strip impregnated with buffered ferric chloride is applied to a wet napkin. The Report recommends the use of the paper strip test in view of its convenience, quickness and relative reliability.

The report goes on to describe the difficulties presented by false negative and false positive results. It recommends all who are planning programmes for routine testing to study three papers (Gibbs and Woolf, 1959; Hudson and Ireland, 1959; and Boyd, 1961).

#### *ii. Control of Treatment*

A Sub-Committee was appointed by the Conference to investigate techniques of quantitative estimation of phenylalanine for the control of the diet of children undergoing treatment. As a result they recommended the amino acid oxidase method which they regarded as the best routine method. The report emphasizes that treatment should not be started until the diagnosis has been confirmed by an estimation of phenylalanine in the blood.

### iii. Diet

A Sub-Committee was also appointed to consider the low phenylalanine diet in relation to physical growth and development during infancy. It was found that a proportion of infants being treated developed a severe rash, failed to gain weight and showed marked lethargy, listlessness, anorexia and sometimes vomiting. It was usually but not exclusively infants in the first year of life who were affected. The rash is very resistant to all topical treatments and three children with phenylketonuria were known to have died with these symptoms. The Sub-Committee were not able to give a final answer as to why some infants developed these signs. A deficiency of phenylalanine can itself produce the typical rash and other symptoms but other dietary deficiencies may be acting in some cases. The diet should therefore provide adequate amounts of vitamins and the report details the type of diet which should be given.

### iv. Results of Treatment

The report says that, of 25 children who started treatment before the age of 12 weeks, 20 are stated to have intelligence within normal limits. It is generally considered that improvement in mental development may be expected if the diet is started before the age of 16 months and in a few cases improvement may take place even if the diet is taken later than this.

It is not yet known for how long treatment should continue. The Conference advised that, in future, full opportunities should be provided for the collection of complete data on the progress of all cases reported in Britain.

## Premature Births

### *Number of premature infants and percentage distribution of weight*

There was a total of 853,014 births notified in 1962 and 64,535 or 7.6 per cent. of them were premature. Out of 837,852 live births, 55,999 or 6.7 per cent. were premature, while out of 15,162 still births 8,536 or 56.3 per cent., were premature. Of the 55,999 premature live births 50.7 per cent. (28,403) weighed between 4 lbs. 15 oz. and 5 lbs. 8 oz. and 11.2 per cent. (6,249) were less than 3 lbs. 4 oz. in weight. On the other hand, of the 8,536 premature still births 14.7 per cent. (1,251) weighed between 4 lbs. 15 oz. and 5 lbs. 8 oz. while 46.7 per cent. (3,985) weighed less than 3 lbs. 4 oz.

### *Incidence and Place of birth*

There has been little change in the proportion of premature births during the last few years. Of the premature live births notified 80.2 per cent. occurred in institutions and 19.8 per cent. at home compared with 79.6 per cent. and 20.4 per cent. in 1961. Of the premature still births notified 89.0 per cent. occurred in institutions and 11.0 per cent. at home compared with 88.3 and 11.7 per cent. in 1961.

### *Mortality in premature infants*

From Table II it can be calculated that 24.8 per cent. of all notified premature births were either of a dead foetus or of an infant which died within 28 days of birth compared with 25.6 in 1961. The neonatal mortality rate of notified premature infants was 133.3 per 1,000 compared with 138.8 per 1,000 in 1961 and a general neonatal mortality rate of 15.1 per 1,000 in 1962.

The final Report of the Conference has now been published (Medical Research Council, 1963). It is divided into four sections:—

- i. Detection.
- ii. Control of Treatment.
- iii. Diet.
- iv. Results of Treatment.

#### *i. Detection*

The Conference recommends that Local Health Authorities should be asked to continue to maintain and, if possible, expand their present programmes of routine screening tests. It states that no two affected children are alike in the exact age at which phenylalanine metabolites first appear in the urine, but phenylpyruvic acid is not usually detectable until the second or third week of life and in some cases not until the sixth week. Whether lasting harm results if treatment is delayed until the sixth week of life is as yet unknown, although it has been found that the levels of phenylalanine in the blood and of its products in the urine are not always related to the degree of subsequent retardation in development of intelligence. The Conference, therefore, recommends that a system of two tests should be employed to avoid all possibility of doubt: one to be carried out at about the 10th to 14th day of life and one later, preferably between the fourth and sixth week.

Particular attention is drawn in this Report to a special group of "high risk" children. These are babies born into families in which the possibility of phenylketonuria is already known. It is advised that these children should be referred for the determination of serum phenylalanine concentration at the ages of 7 days and about 21 days as well as having more frequent urine tests for phenylpyruvic acid.

The tests in common use involve the addition of reagents such as ferric chloride or dinitrophenylhydrazine to small samples of urine, or a modification of the ferric chloride test in which a paper strip impregnated with buffered ferric chloride is applied to a wet napkin. The Report recommends the use of the paper strip test in view of its convenience, quickness and relative reliability.

The report goes on to describe the difficulties presented by false negative and false positive results. It recommends all who are planning programmes for routine testing to study three papers (Gibbs and Woolf, 1959; Hudson and Ireland, 1959; and Boyd, 1961).

#### *ii. Control of Treatment*

A Sub-Committee was appointed by the Conference to investigate techniques of quantitative estimation of phenylalanine for the control of the diet of children undergoing treatment. As a result they recommended the amino acid oxidase method which they regarded as the best routine method. The report emphasizes that treatment should not be started until the diagnosis has been confirmed by an estimation of phenylalanine in the blood.

# Acute Rheumatism

## Mortality

The number of deaths classified by the Registrar General as due to rheumatic fever in 1962 was 106. Comparable figures from 1953 are given in the table below. From this it will be seen that the figures for 1962 and 1961 are almost the same.

|                | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|----------------|------|------|------|------|------|------|------|------|------|------|
| Males ... ..   | 143  | 152  | 103  | 102  | 78   | 70   | 63   | 61   | 56   | 62   |
| Females ... .. | 167  | 147  | 114  | 106  | 96   | 61   | 63   | 64   | 47   | 44   |
| Total ... ..   | 310  | 299  | 217  | 208  | 174  | 131  | 126  | 125  | 103  | 106  |

## Notification

Under the Acute Rheumatism (Amendment) Regulations 1959 (S.I. 1959 No. 213) acute rheumatism in children under the age of sixteen years is notifiable in the Counties of Cornwall, Lancashire and Lincoln (Parts of Lindsey), also in the County Boroughs of Bristol, Cardiff, Manchester, Newcastle upon Tyne, Sheffield, Kingston-upon-Hull, Grimsby, Lincoln and Salford.

*Cases Notified Under Acute Rheumatism Regulations,  
January–December, 1962*

| Notification Area                           | Registrar General's Estimate of Child Population 0–14 years June, 1962 | Total Notified Cases | Acute Rheumatism | Recur-rence | Chronic Rheumatic Heart Disease | Not Rheumatism |
|---------------------------------------------|------------------------------------------------------------------------|----------------------|------------------|-------------|---------------------------------|----------------|
| Cornwall C.C. ... ..                        | 70,800                                                                 | 4                    | 4                | —           | —                               | —              |
| Lancashire C.C. ... ..                      | 509,300                                                                | 27                   | 26               | —           | 1                               | —              |
| Lincolnshire C.C. (Parts of Lindsey) ... .. | 81,000                                                                 | 1                    | 1                | —           | —                               | —              |
| Bristol C.B. ... ..                         | 97,100                                                                 | 12                   | 10               | 1           | —                               | 1              |
| Cardiff C.B. ... ..                         | 64,900                                                                 | 4                    | 4                | —           | —                               | —              |
| Manchester C.B. ... ..                      | 158,800                                                                | 6                    | 5                | —           | —                               | 1              |
| Newcastle upon Tyne C.B. ... ..             | 62,600                                                                 | 6                    | 5                | 1           | —                               | —              |
| Sheffield C.B. ... ..                       | 100,400                                                                | 14                   | 10               | —           | —                               | 3              |
| Kingston-upon-Hull C.B. ... ..              | 78,600                                                                 | 11                   | 6                | —           | —                               | 3              |
| Grimsby C.B. ... ..                         | 24,900                                                                 | 2                    | 2                | —           | —                               | —              |
| Lincoln C.B. ... ..                         | 17,200                                                                 | 3                    | 3                | —           | —                               | —              |
| Salford C.B. ... ..                         | 36,900                                                                 | 9                    | 9                | —           | —                               | —              |
| Total ... ..                                | 1,302,900                                                              | 99                   | 85               | 2           | 1                               | 10             |

The total number of cases of acute rheumatism notified in all twelve areas during 1962 was 87, including two recurrences, compared with 113, including one recurrence in 1961. Notifications from the twelve areas combined and expressed as the number of cases of acute rheumatism notified per 10,000 of child population aged 0–14 years continue to fall. In 1959 and 1960 there were about 1·4 in 10,000, in 1961 about 0·9 in 10,000, and in 1962 about 0·7 in 10,000.

The following table shows the number of cases of acute rheumatism notified for the child population in the 0-14 year-old age group for the four years during which this condition has been notifiable for twelve areas in England and Wales and, for the last six years, for eight of those areas\* from which acute rheumatism has been notified since 1957.

*Notification of Acute Rheumatism in Child Population 0-14 years of Certain Areas 1957-1962*

| Notification Area                          | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|--------------------------------------------|------|------|------|------|------|------|
| *Cornwall C.C. ... ..                      | 15   | 3    | 4    | 5    | 4    | 4    |
| Lancashire C.C. ... ..                     |      |      | 51   | 54   | 37   | 26   |
| *Lincolnshire<br>(Parts of Lindsey) ... .. | 9    | 9    | 3    | 9    | 2    | 1    |
| *Bristol C.B. ... ..                       | 19   | 27   | 19   | 24   | 10   | 10   |
| Cardiff C.B. ... ..                        |      |      | 15   | 16   | 15   | 4    |
| Manchester C.B. ... ..                     |      |      | 21   | 16   | 10   | 5    |
| Newcastle upon Tyne C.B. ... ..            |      |      | 18   | 14   | 10   | 5    |
| *Sheffield C.B. ... ..                     | 19   | 11   | 16   | 17   | 4    | 10   |
| *Kingston-upon-Hull C.B. ... ..            | 2    | 10   | 18   | 15   | 8    | 6    |
| *Grimsby C.B. ... ..                       | 1    | 3    | 4    | 1    | 1    | 2    |
| *Lincoln C.B. ... ..                       | 5    | 2    | —    | —    | 1    | 3    |
| *Salford C.B. ... ..                       | 19   | 16   | 9    | 19   | 10   | 9    |

\* Denotes the eight areas from which acute rheumatism has been notified since 1957.

The general trend throughout this period has been downwards with the greatest fall in the number of cases notified in Lancashire and Cardiff. Expressed as notifications per 10,000 of the child population aged 0-14 years the fall, particularly in Cardiff, is even more apparent as shown in the following table.

*Notified Acute Rheumatism, Lancashire C.C. & Cardiff C.B. in 1959 and 1962*

|                   | Cases Notified |      | Child Population<br>0-14 years |         | Rate<br>per 10,000 children |      |
|-------------------|----------------|------|--------------------------------|---------|-----------------------------|------|
|                   | 1959           | 1962 | 1959                           | 1962    | 1959                        | 1962 |
| Lancashire ... .. | 51             | 26   | 487,600                        | 509,300 | 1.04                        | 0.51 |
| Cardiff ... ..    | 15             | 4    | 62,600                         | 64,900  | 2.39                        | 0.61 |

*References*

- Boyd, M. M. M., 1961. *Brit. med. J.*, i, 771.  
 Burley, D. M., 1962a. *Lancet*, i, 100.  
 Burley, D. M., 1962b. *Lancet*, i, 271.  
 Gibbs, N. K. and Woolf, L. L., 1959. *Brit. med. J.*, ii, 532.  
 Hayman, D. J., 1961. *Lancet*, ii, 1262.  
 Hudson, F. P. and Ireland, J., 1959. *Brit. med. J.*, ii, 885.  
 Kohler, H. G., Fisher, A. M. and Dunn, P. M., 1962. *Lancet*, i, 326.  
 Leck, I. M. and Millar, E. L. M., 1962. *Brit. med. J.*, ii, 16.  
 Lenz, W., 1962a. *Lancet*, i, 45.  
 Lenz, W., 1962b. *Dtsch. med. Wschr.*, 87, 1232.  
 McBride, W. G., 1961. *Lancet*, ii, 1358.  
 Medical Research Council, 1963. *Brit. med. J.*, i, 1691.  
 Puig, C. D., 1962. *Nat. Inst. Econ. Rev.*, 22, 22.  
 Pfeifer, R. A. and Kosenow, W., 1962. *Lancet*, i, 45.  
 Quibell, E. P., 1962. *Lancet*, i, 1402.  
 Smithells, R. W., 1962. *Lancet*, i, 1270.  
 Speirs, A. L., 1962. *Lancet*, i, 303.  
 Wigglesworth, R., 1962a. *Brit. med. J.*, i, 1758.  
 Wigglesworth, R., 1962b. *Lancet*, ii, 349.

## VII

## CHRONIC DISEASES

## The Cancers

The mortality from malignant disease in 1962 exceeded 100,000 for the first time. Over one-fifth of this number was caused by male lung cancer deaths. These at 20,278 exceeded male deaths from cancer of the entire digestive system—a very different picture from that of 20 years ago when cancer of the stomach alone accounted for more male deaths than any other single site.

TABLE I

*Mortality from Cancer (140-205), England and Wales, 1950-62*

| Year     | Number of Deaths |         |         | Crude death rate per million living |         | *Standardized mortality ratio (base years 1950-1952 taken as 100) |         |
|----------|------------------|---------|---------|-------------------------------------|---------|-------------------------------------------------------------------|---------|
|          | Males            | Females | Persons | Males                               | Females | Males                                                             | Females |
| 1950 ... | 43,570           | 41,700  | 85,270  | 2,058                               | 1,840   | 98                                                                | 101     |
| 1951 ... | 44,632           | 41,448  | 86,080  | 2,121                               | 1,820   | 101                                                               | 99      |
| 1952 ... | 45,429           | 42,213  | 87,642  | 2,152                               | 1,848   | 101                                                               | 99      |
| 1953 ... | 45,935           | 41,989  | 87,924  | 2,166                               | 1,833   | 102                                                               | 98      |
| 1954 ... | 47,313           | 42,782  | 90,095  | 2,223                               | 1,861   | 103                                                               | 98      |
| 1955 ... | 48,160           | 43,180  | 91,340  | 2,252                               | 1,873   | 104                                                               | 98      |
| 1956 ... | 48,935           | 43,775  | 92,710  | 2,274                               | 1,891   | 105                                                               | 97      |
| 1957 ... | 50,056           | 43,961  | 94,017  | 2,312                               | 1,890   | 106                                                               | 96      |
| 1958 ... | 50,735           | 45,069  | 95,804  | 2,333                               | 1,929   | 106                                                               | 97      |
| 1959 ... | 51,783           | 45,334  | 97,117  | 2,366                               | 1,929   | 107                                                               | 97      |
| 1960 ... | 52,779           | 46,009  | 98,788  | 2,391                               | 1,943   | 108                                                               | 97      |
| 1961 ... | 53,441           | 46,474  | 99,915  | 2,392                               | 1,951   | 108                                                               | 96      |
| 1962 ... | 54,735           | 46,873  | 101,610 | 2,416                               | 1,952   | 109                                                               | 96      |

\* The "Standardized mortality ratio" replaces the "Comparative mortality index" used prior to 1958.

## National Cancer Registration Scheme

Replies to Circular HM(61)108 in which hospital authorities were requested to ensure that every case of cancer treated was fully registered, showed that although progress was being made there were still gaps. In order to give each hospital region an opportunity to explain its difficulties and to discuss with the Ministry and the General Register Office possible methods of achieving greater efficiency in regional registries and in the scheme as a whole it was decided to hold a central Conference during 1963 and to invite to it the senior records officers and a medical officer from each region.

Confirmed registrations for 1960 totalled 106,091.

**TABLE II**  
*Deaths from Cancer of certain sites, England and Wales, 1962*

| International<br>Statistical<br>Classification<br>No. | Sites                                                       | No. of deaths<br>registered |        | Rate per<br>million living |       | Proportion per<br>1,000 total<br>cancer deaths |       |
|-------------------------------------------------------|-------------------------------------------------------------|-----------------------------|--------|----------------------------|-------|------------------------------------------------|-------|
|                                                       |                                                             | M.                          | F.     | M.                         | F.    | M.                                             | F.    |
| 140-159                                               | <i>Total digestive system</i> ...                           | 20,122                      | 19,043 | 888                        | 793   | 368                                            | 406   |
| 140                                                   | Lip... ..                                                   | 63                          | 7      | 3                          | 0     | 1                                              | 0     |
| 141                                                   | Tongue ... ..                                               | 289                         | 128    | 13                         | 5     | 5                                              | 3     |
| 143-148                                               | Buccal cavity and pharynx                                   | 635                         | 423    | 28                         | 18    | 12                                             | 9     |
| 150                                                   | Oesophagus ... ..                                           | 1,391                       | 1,050  | 61                         | 44    | 25                                             | 22    |
| 151                                                   | Stomach ... ..                                              | 7,722                       | 5,874  | 341                        | 245   | 141                                            | 125   |
| 152, 153                                              | Intestine (except rectum)                                   | 3,814                       | 5,579  | 168                        | 232   | 70                                             | 119   |
| 154                                                   | Rectum ... ..                                               | 2,953                       | 2,440  | 130                        | 102   | 54                                             | 52    |
| 157                                                   | Pancreas ... ..                                             | 2,103                       | 2,017  | 93                         | 84    | 38                                             | 43    |
| 160-165                                               | <i>Total respiratory system</i> ...                         | 21,064                      | 3,806  | 930                        | 158   | 385                                            | 81    |
| 161                                                   | Larynx ... ..                                               | 626                         | 153    | 28                         | 6     | 11                                             | 3     |
| 162, 163                                              | Lung, bronchus, pleura<br>and trachea ... ..                | 20,278                      | 3,501  | 895                        | 146   | 370                                            | 75    |
| 170-179                                               | <i>Total breast and genital organs</i>                      | 4,235                       | 16,947 | 187                        | 706   | 77                                             | 362   |
| 170                                                   | Breast ... ..                                               | 79                          | 9,351  | 3                          | 389   | 1                                              | 189   |
| 171                                                   | Cervix uteri ... ..                                         | —                           | 2,511  | —                          | 105   | —                                              | 54    |
| 172-174                                               | Uterus (other than cervix)                                  | —                           | 1,504  | —                          | 63    | —                                              | 32    |
| 175                                                   | Ovary ... ..                                                | —                           | 3,061  | —                          | 127   | —                                              | 65    |
| 177                                                   | Prostate ... ..                                             | 3,820                       | —      | 169                        | —     | 70                                             | —     |
| 179-0                                                 | Penis ... ..                                                | 105                         | —      | 5                          | —     | 2                                              | —     |
| 181, 181                                              | <i>Total urinary system</i> ...                             | 3,179                       | 1,467  | 140                        | 61    | 58                                             | 31    |
| 180                                                   | Kidney ... ..                                               | 842                         | 501    | 37                         | 21    | 15                                             | 11    |
| 181-0, .8                                             | Bladder ... ..                                              | 2,323                       | 941    | 103                        | 39    | 42                                             | 20    |
| 190, 191                                              | Skin ... ..                                                 | 419                         | 456    | 18                         | 19    | 8                                              | 10    |
| 192, 193                                              | Eye, brain and nervous<br>system ... ..                     | 1,224                       | 847    | 54                         | 35    | 22                                             | 18    |
| 194                                                   | Thyroid ... ..                                              | 110                         | 275    | 5                          | 11    | 2                                              | 6     |
| 196, 197                                              | Bone and connective tissue                                  | 463                         | 408    | 20                         | 17    | 8                                              | 9     |
| 195, 198,<br>199                                      | All other and unspecified ...                               | 925                         | 1,041  | 41                         | 43    | 17                                             | 22    |
| 200-205                                               | <i>Total Lymphatic and Haema-<br/>topoietic tissues</i> ... | 2,994                       | 2,583  | 132                        | 108   | 55                                             | 55    |
| 201                                                   | Hodgkin's disease ...                                       | 350                         | 352    | 24                         | 15    | 10                                             | 8     |
| 204                                                   | Leukaemia and leukaemia                                     | 1,392                       | 1,315  | 61                         | 55    | 25                                             | 28    |
| 140-205                                               | <i>Total Cancer</i> ... ..                                  | 54,735                      | 46,873 | 2,416                      | 1,952 | 1,000                                          | 1,000 |

*Comment on Table II*

The main changes in site mortality compared with 1961 are:—

*Increases*

In both sexes. *Lung*, male by 4.2 per cent., female by 4.5 per cent.; *bladder*, male by 8.7 per cent. and female by 4.8 per cent.

In males, only, the most marked increase was in kidney by 12.3 per cent.

In females only there was a rise of 14.7 per cent. in Hodgkins Disease and 6.3 per cent. in the Leukaemias. Pancreas rose by 5.9 per cent. Breast cancer rose by 0.7 per cent. but accounted for 19.9 per cent. of all female cancer deaths.

### *Decreases*

In both sexes. Stomach male by 0·8 per cent., female by 2 per cent. Larynx, male by 4 per cent. and female 7 per cent.

In males only, Lip continued to fall, this time by 26 per cent., and Penis by 13 per cent.

In females the most marked falls were Eye, Brain and Nervous System by 8 per cent., and Tongue by 12 per cent.

### *Lung Cancer*

Male deaths at 20,278 were 818 more than in 1961, an increase of 4·2 per cent. Thirty-seven out of every one hundred male cancer deaths were due to lung cancer.

Female deaths increased by 151 or 4·5 per cent. to 3,501 and represented 7·5 per cent. of all female cancer deaths.

TABLE III

*Death rates per 100,000 from Cancer of the Lung and Bronchus  
(162+163)*

| Age          | Male |      |      |      | Female |      |      |      |
|--------------|------|------|------|------|--------|------|------|------|
|              | 1958 | 1959 | 1960 | 1961 | 1958   | 1959 | 1960 | 1961 |
| 25-34 ...    | 2    | 2    | 3    | 2    | 1      | 1    | 1    | 1    |
| 35-44 ...    | 17   | 18   | 16   | 16   | 5      | 5    | 5    | 5    |
| 45-54 ...    | 92   | 91   | 90   | 89   | 14     | 15   | 15   | 16   |
| 55-64 ...    | 268  | 285  | 288  | 288  | 28     | 29   | 30   | 32   |
| 65-74 ...    | 392  | 417  | 432  | 449  | 40     | 41   | 46   | 48   |
| 75+ ...      | 274  | 297  | 333  | 345  | 46     | 45   | 50   | 53   |
| All ages ... | 78   | 83   | 86   | 87   | 12     | 12   | 13   | 14   |

Below the age of 65 in males there was virtually no change; females in the 55-64 age group showed a steady slight increase. The big increases in both sexes occurred at ages over 65.

In the 35-44 age group the male female ratio was 3:1. This rose to 9·4 to 1 in the 65-74 age group.

### *Lung Cancer and Smoking*

The outstanding event of the year was the publication of the report by the Royal College of Physicians entitled "Smoking and Health", which with the full authority of the College pronounced that cigarette smoking is a cause of lung cancer.

The report will have achieved its object said the President of the Royal College of Physicians "if sensible and responsible men and women, be they in the Government, or cigarette manufacturers, or doctors, or the general public will accept the facts from now on and act accordingly."

There is one certain method of reducing—the apparently simple solution of stopping smoking; in practice, prevention is a complex and intriguing national problem which cannot be solved by prohibitions nor in a short time. One duty of all however is crystal clear, to dissuade the young from acquiring

this habit which we now know may cause serious injury to health and may cause premature deaths.

The report had an immediate impact. Retail sales of cigarettes, it is stated, fell by 20 per cent., filter tip cigarettes became more popular, and more pipes and cigars were sold. According to trade sources within two months the total sales of tobacco had recovered to their previous dimensions but with a definite swing to filter tips and cigars and whiffs.

Nevertheless, a public reaction is taking place. A reaction difficult to define but evidenced by a growing disapproval of smoking in public places, a greater demand for non-smoking compartments in trains and a general awareness that smoking, at least of cigarettes, is a bad habit and not an aspect of manliness; yet the effect so far produced is inadequate and will have a negligible result in saving life in future. Unless there is a great reduction in the smoking of cigarettes, the needless loss of life will continue to increase. The facts by now must be generally known, but they are not being faced.

### *The Systemic Treatment of Malignant Disease*

The empirical use of drugs in the treatment of cancer has a long but largely unsuccessful history; many preparations have enjoyed short periods of popularity, but none was found of lasting value until the effect of sex hormones on prostatic (and mammary) cancers was discovered.

#### *Hormones*

At the end of the last century the relationship between sex hormones and some breast tumours was appreciated. Beatson in Britain in 1896 noted the regression of a breast cancer after ovariectomy, and since then the recognition of the dependence of some tumours on hormones has resulted in some and hopeful developments in the investigation and treatment of the cancer.

Only a small proportion of malignant tumours prove to be hormone dependent, and scientific application of hormone or anti-hormone therapy is hampered by the lack of any reliable assay method to demonstrate this dependence.

Cancers of the prostate and of the breast have shown the most marked responses to hormone therapy; long remissions have been maintained in the former, dramatic but more sporadic and more temporary beneficial results in the latter.

The development of synthetic hormones and corticosteroids has greatly widened the scope of hormone therapy.

Hormones either natural or synthetic are given by mouth, injection or implantation. The normal output of hormones may be restricted by the use of surgery or radiotherapy. Ovarian, testicular, adrenal and pituitary secretions may be suppressed by these means and worthwhile amelioration of symptoms results in a varying proportion of cases. Until there is available some test to determine beforehand which cases will benefit, these sometimes formidable measures will remain of uncertain value for the individual patient.

### *Radio-isotopes*

The search for systemic radio-active isotopes which would be selectively absorbed by tumour tissues and so irradiate them, has proved of limited value. Radio-iodine in certain thyroid cancers and radio-phosphorus in polycythaemia vera are the two main clinical applications in use.

### *Chemotherapy*

The "new" chemotherapy of cancer is based on experimental chemistry and springs from the realization that tumour inhibiting activity might be related to tumour structure and metabolism.

War-time research produced mustard gas—nitrogen mustard—and this unlikely substance provided the foundation on which the treatment of cancer by synthetic chemicals started. It was first tried clinically on human cancers in the United States and Britain around 1942 and the search for anti-cancer drugs has developed with increasing enthusiasm ever since.

Methods of chemical attack on the cancers are limited by the knowledge that cancer cells are, in the first instance, derived from the body's own cells; they differ in their biological behaviour from normal cells but their biochemical behaviour, on which scientific attack depends, has not been shown to differ in a manner uniform to all types of malignant disease and seldom to a degree exploitable therapeutically: nevertheless, the intensity of the search for anti-cancer drugs has been remarkable especially in the United States, Russia and Japan. The prominence of the various aspects of chemotherapy at the recent International Cancer Congress in Moscow gave some indication of the large scale on which this method was being applied experimentally, throughout the world.

In the United States chemotherapy of cancer is a major laboratory and medical project. Thousands of new chemical compounds are screened annually but it is recognized that as long as the biochemical differences between normal and malignant cells remain so indefinite, this chemotherapy project must remain experimental largely resting on an empirical basis.

### *Agents in use*

There is now a wide choice of agents which fall into three main groups:—

1. Biological alkylating agents. These act as did the original nitrogen mustard, by interfering with mitosis and are toxic to all proliferating cells and so are liable to damage the haematopoietic system.

Busulphan, evolved by Haddow and his team at the Chester Beatty Institute, London, is now the drug of choice in chronic granulocytic leukaemia.

Many alkylating agents are in clinical use, the main ones in their countries of origin being:—

Japan—Nitromin.

U.S.S.R.—Sarcolysin.

Hungary—Mannomustine ("Degranol").

U.K.—Busulphan ("Myleran").

Chlorambucil ("Leukeran").

U.S.A.—Triethylene thiophosphoramidate ("Thio-tepa").

Tretamine ("T.E.M.").

Germany—Cyclophosphoramidate ("Endoxana").

2. Anti-metabolites. These compete with the normal cell metabolites and act by interfering with some part of the metabolism of the cell, inhibiting nucleic acid syntheses and so disorganizing cell division. Their effects, like the alkylating agents, are indiscriminate on all dividing cells though, theoretically at least, anti-metabolites can be aimed at inhibiting special requirements of particular tumour types. The best known of these agents are the folic acid antagonists. The high requirement of folic acid by rapidly growing foetal and maternal tissues is well known and may account for the success attending the use of the anti-folic acid agent "*Methotrexate*" (amethopterin) in the treatment of uterine chorionepithelioma.
3. Antibiotics and miscellaneous agents. A series of antibiotics, chiefly vinblastine sulphate, actinomycin C and D, and substances such as colchicine, urethane and Vitamin B12 have all shown some anti-cancer effects, usually by the same final mechanism of inhibiting mitosis. Vitamin B12 has been used with some success in the treatment of neuroblastomas in young children.

### *Techniques of chemotherapy*

Cytotoxic drugs may be given by mouth or injection. All are damaging to the haematopoietic system and serious side-effects may occur if the drug has to be pushed in order to gain the desired anti-tumour effect. To diminish the general toxic effects and to increase the concentration of the drug in the tumour area various regional perfusion techniques are being tried. Intra-arterial infusion of the drug into the main artery supplying the tumour is given either by continuous drip or by intermittent injections through an indwelling catheter. If a folic acid antagonist is being used, folic acid can be given systemically to counteract the general effect of the antagonist and so allow the dose to the tumour area to be increased.

In sites where the general circulation can be closed off from the tumour area as in the limbs much surgical ingenuity has been expended in perfusion techniques. Concentrated doses of cytotoxic drugs can be delivered to an isolated area under high arterial oxygen tension by means of an extra-corporeal circuit.

### *Results*

Therapeutic gains to date have been few and only touch the fringe of the cancer problem. The use of cytotoxic drugs must be considered in relation to all other available forms of treatment and the results judged accordingly. Though usually exhibited only in advanced cases, chemotherapy is no longer a last resort but may even be the method of choice in the treatment of the leukaemias and in some of these and in disseminated reticulososes prolonged remissions and amelioration of symptoms may be achieved. Perfusion techniques have proved of value in causing temporary regression of tumours and relief of pain particularly in head and neck tumours and widespread melanomata.

The remissions achieved by methotrexate and also by various combinations of agents in the treatment of some trophoblastic tumours have been so prolonged and complete as to suggest cure.

In the common forms of cancer no real gains can yet be claimed and the role of chemotherapy is not yet established.

#### *Disadvantages*

Cytotoxic drugs are harmful to all proliferating cells and administration may be hazardous. Near-lethal doses may be required to cause tumour regression and the patient does not always benefit from such drastic measures. Side-effects, in addition to depression of the bone marrow, include nausea, vomiting, haemorrhages, skin rashes, mouth ulcers and alopecia and secondary infections are common and distressing and some of them may prove fatal. Supportive transfusions of blood, plasma, platelets or bone-marrow and strict aseptic nursing are often required. It would seem that the margin between the desired result and a severe toxic effect on the patient is too narrow in many instances.

It is obvious that chemotherapy of cancer in its present stage demands judgment, specialized knowledge and skills, full laboratory facilities and experienced nursing, especially for the prevention of infection, and should only be undertaken in hospitals where all these essentials are available.

#### *Conclusion*

A systematic attack on cancer by chemical means is in progress and is still in the early stages of development both as regards the compounds used and the techniques employed.

Some advances have been achieved and the work with hormones suggests promising possibilities within a limited range. It may be that the relationships between the steroids, the alkylating agents, anti-metabolites and other cytotoxic agents on the one hand and the agents of carcinogenesis on the other will eventually throw light on carcinogenesis itself.

Meantime the clinical application of cytotoxic drugs requires great discretion and may raise serious ethical problems. Every available form of cancer treatment has to be considered and a policy chosen in each case which offers the best chance of success with the least discomfort to the patient. Whether chemotherapy of cancer is to be developed by the general physician or some other consultant is a matter for local medical decision and in any event a team of experts will often be required with special accommodation which assists the avoidance of infection.

Development of chemotherapy by the individual enthusiast in a centre lacking full facilities is unlikely to succeed—at least at this stage.

According to Smithers (1961) "Chemotherapy is badly in need of much firmer clinical direction into channels where there are good reasons to make use of special demands, correct abnormal functions or replace deficient inhibitors and so of expecting better responses". This is a matter hospital medical committees concerned will need to ponder.

#### *Reference:*

Smithers, D. W., 1960. *A clinical prospect of the cancer problem*. Edinburgh and London, Livingstone, p. 215

#### **Chronic Bronchitis**

Chronic bronchitis, a peculiarly English disease (Table I), is to a considerable extent an illness related to economic conditions; the less skilled, the less well paid and those living under less pleasant conditions are more prone to suffer from bronchitis. Table II indicates the variation in

standardized mortality ratio by socio-economic group. This shows quite clearly that there is a social as well as an occupational gradient with the disease, for wives have approximately the same relative mortality as their husbands, although not exposed to their occupational environment. In what way socio-economic status is important is not fully understood; it seems likely that environmental factors play a major part. There is a suggestion that cigarette smoking increases in inverse proportion as the Registrar General's Social Class grouping descends (Todd, 1962 a) and the homes of people with low incomes are likely to be found in places where the air is more polluted than elsewhere. As Table III shows, there is a large urban/rural gradient in bronchitis mortality and probably a large part of this variation is due to air pollution differences. However, there is also an urban/rural cigarette smoking gradient (Todd 1962 b) and some of the bronchitis mortality differences may well be attributable to this. Further evidence against social class differences being accounted for by air pollution alone is provided by the fact that within urban and rural areas the mortality difference by social class for respiratory diseases is maintained. (Registrar General, 1958.)

The medical and social problem presented by chronic respiratory disease is numerically one of our most serious; in 1961 there were 31,363 deaths in England and Wales assigned to acute and chronic bronchitis, a figure which accounts for 5 per cent. of all deaths. Put another way, bronchitis is the third most common cause of death in men over the age of 30, being surpassed only by arteriosclerotic and degenerative heart disease and by vascular lesions affecting the central nervous system. Further, mortality statistics considerably under-rate the contribution made by bronchitis to total mortality; in his Report for 1951 the Registrar General found that for every 1,000 certificates in which bronchitis was stated to have been the underlying cause of death there were another 737 in which it was mentioned as playing a part.

Table IV shows the death rates for bronchitis for the period 1956 to 1960. Mortality is much higher amongst men than women and also higher, as would be expected, at the older ages. Figures from year to year are variable and no clear trend is visible; (the recent report on bronchitis of the Scottish Standing Medical Advisory Committee shows the downward trend there to have been arrested or, in some age groups, even reversed).

The international comparison, already referred to (Table I), probably does not represent the true difference between all the countries shown, owing to national variation in diagnostic habits and classification; all the same, from knowledge gained from recent prevalence surveys, there seems little doubt that England and Wales does in fact have the highest mortality from bronchitis of any country.

Apart from mortality, the burden of morbidity which the country carries as a result of chronic bronchitis is formidable. A survey by the College of General Practitioners (1961) showed that the prevalence of chronic bronchitis in persons aged 40-64 was 17 per cent. for men and 8 per cent. for women. The pattern parallels that for deaths, prevalence being greater in urban than rural areas, amongst smokers compared with non-smokers and amongst unskilled compared with skilled workers. An earlier survey carried out among general practitioners (Logan and Cushion, 1958) showed

that bronchitis was the commonest reason for consulting the practitioner (261.1 consultations per thousand patients per year). Another pointer to the size of the problem is given by the sickness absence from work figures of the Ministry of Pensions and National Insurance; from these it can be calculated that some 29 million working days are lost each year in Great Britain from sickness due to bronchitis. Table V gives an indication of the load that chronic respiratory disease places on the hospital service. Thus it appears that for males 213.3 and for females 122.5 beds per million population are used for treating chronic respiratory disease annually; this comprises 5.5 per cent. of all male and 2.5 per cent. of all female beds.

All the above figures demonstrate the magnitude of the problem with which we are faced. The question is, what can be done about it now and in the future. The evidence is now strong that environmental factors are all important in chronic bronchitis, though it is likely that there is also a constitutional element in susceptibility to the condition. The two most important aetiological factors disclosed by epidemiological research are cigarette smoking and atmospheric pollution.

The evidence incriminating cigarette smoking is overwhelming and there is little doubt that stopping cigarette smoking alone would lead to a large fall in bronchitis mortality. Although it is not known for certain, it seems likely that the smoking habits laid down early in life may help determine the future respiratory history. If young people especially were to resist the impulse to begin smoking a great start would have been made. With this object in view a health education campaign, to bring home to the public the risks of smoking, especially of cigarettes, is being undertaken by local authorities with help from the Central Departments and from the Central Council for Health Education who have two mobile educational units touring England and Wales, whose role is to help authorities in their campaigns. Experimental anti-smoking clinics have also been set up. One of the major problems is to learn what are the underlying motives in smoking cigarettes and why people begin. The reasons may be complex and deep seated and there is need for more research in this field.

The publication during the year of the Royal College of Physicians of London Report, "Smoking and Health" (1962), undoubtedly made a strong impact. As the Report points out, cigarette smoking has been incriminated as an important environmental factor in chronic bronchitis; population surveys have shown that recurrent chest illnesses are found more in cigarette smokers than in non-smokers or pipe smokers and chronic bronchitis has been found to be closely related quantitatively to smoking habits. That there is still widespread failure to take the Report's conclusions seriously is demonstrated by the number of cigarettes still smoked.

The other main environmental factor in the causation of chronic bronchitis is air pollution. There is no doubt about the effect of atmospheric pollution on the patient with chronic respiratory disease. Apart from the epidemiological evidence, already referred to, studies have been carried out which show a relationship between specific pollution and bronchitis deaths. Thus Stocks (1959) was able to show a strong correlation between bronchitis mortality and deposited matter; whilst Fairbairn

and Reid (1958) found a highly significant correlation between deaths and fog, as indicated by visibility. Mortality from bronchitis was also shown to increase during isolated pollution episodes in London, both during the 1952 smog and in 1958-59. (Ministry of Health, 1954; Martin and Bradley, 1960; Martin, 1961). The effect of air pollution, without fog, on the individual has been shown by Lawther (1958), who followed bronchitic patients' symptoms and found they deteriorated with increasing pollution. Thus the cleansing of the urban atmosphere, through application of the measures of the Clean Air Act, is urgent. So far, some 1,500,000 premises in heavily polluted areas have been covered by smoke control orders; by the end of 1966 it has been estimated that the number of premises covered will have more than doubled to about 3,700,000.

To what extent local removal of air pollution in home and hospital should be carried out is not yet known with certainty. The chief difficulty is that the responsible factor or factors have not been isolated. Research is proceeding on these lines and more needs to be known also about the value of air conditioning or filtering air to hospital wards.

The third important aetiological factor in chronic respiratory disease is bacterial and also possibly viral infection. Here again more research is needed to find the part infection may play in laying the early foundations of chronic bronchitis. At present the evidence for a causal relationship is uncertain.

There are leads, therefore, to various ways in which the bronchitis problem can be attacked. What perhaps is needed is a more concerted marshalling of the forces, aiming particularly at preventing chronic disease developing by paying particular attention to prevention in the young early patient. It is particularly important to emphasize prevention and the early treatment of young patients in chronic bronchitis because of the great obstacles to successfully treating the established disease. Once structural lung changes have taken place treatment is at best palliative and despite it the patient's course tends to run downhill, both medically and economically. Changes of occupation and environment have been suggested but they involve major upsets in the patient's life and are often not feasible. The best hope may lie in co-operation between the general medical, the hospital and the local health authority services in dealing with this major source of mortality, which has now moved, as it were, into the limelight as other causes of death and chronic sickness diminish.

#### References

- College of General Practitioners, 1961. *Brit. med. J.*, ii, 973.  
 Fairbairn, A. S. and Reid, D. D., 1958. *Brit. J. prev. soc. Med.*, 12, 94.  
 Lawther, P. J., 1958. *Proc. Roy. Soc. Med.*, 51, 262.  
 Logan, W. P. D. and Cushion, A. A., 1958. *Morbidity statistics from general practice*. Vol. I. (Studies on Medical and Population Subjects No. 14). London, H.M.S.O.  
 Martin, A. E., 1960. *Mon. Bull. Minist. Hlth*, 20, 42.  
 Martin, A. E. and Bradley, W. H., 1960. *Mon. Bull. Minist. Hlth*, 19, 56.  
 Ministry of Health, 1954. *Mortality and morbidity during the London fog of December, 1952*. (Reports on Public Health and Medical Subjects, No. 95). London, H.M.S.O.  
 Registrar General, 1958. *Decennial supplement, England and Wales, 1951. Occupational mortality*. Part 2, volume 1. London, H.M.S.O.  
 Royal College of Physicians, 1962. *Smoking and Health*. London, Pitman Medical.  
 Stocks, P., 1959. *Brit. med. J.*, i, 74.  
 Todd, G. F., 1962a. *Statistics of smoking in the United Kingdom*. 3rd edition. (Research Papers No. 1.) London, Tobacco Manufacturers' Standing Committee. Table 21(a) and (b).  
 Todd, G. F., 1962b. *ibid.*, Table 23.

TABLE I

*Bronchitis Death rates per 100,000 population for selected countries*

|                                  | Males | Females |
|----------------------------------|-------|---------|
| England and Wales ... ..         | 92.3  | 37.7    |
| Scotland ... ..                  | 70.8  | 29.3    |
| Northern Ireland... ..           | 54.0  | 27.4    |
| Canada ... ..                    | 7.6   | 2.4     |
| United States ... ..             | 3.1   | 1.3     |
| Venezuela ... ..                 | 7.7   | 7.4     |
| Ceylon ... ..                    | 8.8   | 9.5     |
| Israel ... ..                    | 4.3   | 1.9     |
| Japan ... ..                     | 8.9   | 7.9     |
| Germany, Federal Republic ... .. | 18.9  | 8.8     |
| West Berlin ... ..               | 29.5  | 10.3    |
| Austria ... ..                   | 11.7  | 7.5     |
| Belgium ... ..                   | 21.6  | 8.1     |
| Denmark ... ..                   | 8.0   | 4.7     |
| Finland ... ..                   | 5.6   | 1.7     |
| France ... ..                    | 4.8   | 3.1     |
| Greece ... ..                    | 4.7   | 3.8     |
| Hungary ... ..                   | 6.2   | 3.2     |
| Italy ... ..                     | 26.9  | 18.4    |
| Norway ... ..                    | 4.9   | 4.4     |
| Netherlands ... ..               | 14.5  | 6.4     |
| Portugal ... ..                  | 29.6  | 18.2    |
| Sweden ... ..                    | 4.6   | 3.1     |
| Switzerland ... ..               | 6.4   | 4.1     |
| Czechoslovakia ... ..            | 13.2  | 6.3     |
| Australia ... ..                 | 20.4  | 5.2     |
| New Zealand ... ..               | 35.8  | 11.4    |

TABLE II

*Bronchitis Standardized Mortality Ratios (20-64) by socio-economic groups 1949-53 for males and married women*

| Socio-economic Group                  | Males | Married Women |
|---------------------------------------|-------|---------------|
| Total ... ..                          | 100   | 100           |
| 1. Farmers ... ..                     | 31    | 52            |
| 2. Agricultural workers ... ..        | 53    | 82            |
| 3. Higher administrative, etc. ... .. | 34    | 35            |
| 4. Other administrative, etc. ... ..  | 48    | 43            |
| 5. Shopkeepers ... ..                 | 76    | 59            |
| 6. Clerical workers ... ..            | 88    | 65            |
| 7. Shop assistants ... ..             | 65    | 70            |
| 8. Personal service ... ..            | 117   | 96            |
| 9. Foremen ... ..                     | 70    | 93            |
| 10. Skilled workers ... ..            | 108   | 112           |
| 11. Semi-skilled workers ... ..       | 114   | 138           |
| 12. Unskilled workers ... ..          | 172   | 155           |

TABLE III

*Bronchitis Standardized Mortality Ratios in regional groups and urban and rural aggregates, England and Wales, 1959*

|                                 | Conurbations | Urban areas with populations of 100,000 and over | Urban areas with populations of 50,000 and under 100,000 | Urban areas with populations of under 50,000 | Rural areas | All areas |
|---------------------------------|--------------|--------------------------------------------------|----------------------------------------------------------|----------------------------------------------|-------------|-----------|
| England and Wales               | 130          | 103                                              | 94                                                       | 84                                           | 66          | 100       |
| North of England ...            | 142          | 126                                              | 115                                                      | 101                                          | 78          | 121       |
| Midland and Eastern England ... | 139          | 100                                              | 102                                                      | 80                                           | 69          | 93        |
| Greater London ...              | 119          | —                                                | —                                                        | —                                            | —           | 119       |
| South of England ...            | —            | 80                                               | 71                                                       | 64                                           | 54          | 64        |
| Wales ...                       | —            | 130                                              | 128                                                      | 112                                          | 80          | 108       |

TABLE IV

*Death rates per 100,000 population at all ages and at ages over fifteen years from bronchitis, by sex, in each year 1956 to 1961*

|                 | Males |      |      |      |      |       | Females |      |      |      |      |      |
|-----------------|-------|------|------|------|------|-------|---------|------|------|------|------|------|
|                 | 1956  | 1957 | 1958 | 1959 | 1960 | 1961  | 1956    | 1957 | 1958 | 1959 | 1960 | 1961 |
| All ages ...    | 92    | 88   | 93   | 92   | 86   | 99    | 43      | 35   | 39   | 38   | 32   | 38   |
| 15-24 years ... | 0.55  | 0.40 | 0.93 | 0.52 | 0.47 | 0.52  | 0.40    | 0.50 | 0.64 | 0.45 | 0.24 | 0.50 |
| 25-44 " ...     | 3.4   | 3.8  | 4.0  | 3.3  | 3.5  | 3.2   | 2.2     | 2.1  | 2.1  | 1.9  | 1.5  | 2.0  |
| 45-64 " ...     | 113   | 111  | 112  | 107  | 99   | 112   | 23      | 21   | 23   | 21   | 18   | 21   |
| 65-74 " ...     | 503   | 484  | 518  | 513  | 466  | 555   | 134     | 115  | 117  | 116  | 92   | 119  |
| 75 and over ... | 973   | 846  | 951  | 962  | 916  | 1,072 | 494     | 358  | 407  | 388  | 328  | 385  |

TABLE V

*Chronic Respiratory Disease. The load on the Hospital Service*

|                               |   | Mean duration of stay per spell (days) | Number of beds used per million population at 100% occupancy | Percentage of beds used for asthma, etc., proportionate to beds used for all causes |
|-------------------------------|---|----------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Asthma ...                    | M | 17.7                                   | 16.3                                                         | 0.4                                                                                 |
|                               | F | 16.9                                   | 20.5                                                         | 0.4                                                                                 |
| Bronchitis...                 | M | 27.5                                   | 138.0                                                        | 3.6                                                                                 |
|                               | F | 25.6                                   | 62.0                                                         | 1.3                                                                                 |
| Other Respiratory Disease ... | M | 26.9                                   | 59.0                                                         | 1.5                                                                                 |
|                               | F | 33.3                                   | 40.1                                                         | 0.8                                                                                 |

## Rheumatic Diseases

Reference was made in this report last year to a second Report from the Committee of the Royal College of Physicians appointed in 1950 to consider the organization of treatment of chronic rheumatic diseases with special reference to the needs of the Health Service. In this second Report the Committee had strongly reiterated their view, expressed in the first Report in 1951, that special centres which would be responsible for research into and teaching on chronic rheumatic diseases as well as for treatment, should be established. It was also suggested that in all large hospitals or Hospital Groups there should be consultant clinical appointments in rheumatology and that there was an urgent need for more appointments in this field.

The Report of the Medical Services Review Committee also deals with the question of rheumatic diseases. It is pointed out therein that although most chronic rheumatic disease is treated in departments of physical medicine, physical methods are currently being used less frequently. In the view of this Committee there is an urgent need to encourage the creation of a service in this specialty throughout the country.

At present there are several special centres for chronic rheumatic diseases of the sort advocated in 1951 by the Committee of the Royal College of Physicians, but only two of these have been founded in the last twelve years and there are several Hospital Regions which still lack such a centre. No new consultant posts in rheumatology have been established in the last three years. There are difficulties in defining the sphere of activities of different medical specialties and it is undoubtedly true that a considerable proportion of patients suffering from chronic rheumatic conditions may be treated most suitably at the hands of the general physicians and the consultants in physical medicine. It certainly seems improbable at present that a case could be made for appointing to all hospitals physicians who are solely practising rheumatology or for establishing rheumatism units at a large number of district general hospitals, nor in fact does the Royal College's Report advocate such a step. The Report does, however, present good reasons for re-examining the case for increasing the number of special centres for chronic rheumatic diseases and for making some appointments of consultants in rheumatic diseases or for those with a special interest in the subject.

A specialty such as Rheumatology can only develop if professional opinion favours it and the chief obstacle now is undoubtedly the unreadiness of physicians to accept the segregation of this group of diseases even to the limited extent proposed. The Report certainly justifies re-examination of the methods now used in the larger centres at least and grouping of these patients as the particular responsibility of one physician, unless it is clear that the attention devoted to this group of patients is commensurate with their needs.

## VIII

### ENVIRONMENTAL HYGIENE

Man has a remarkable ability to adjust himself to his environment within certain limits. He can, with some effort, adapt himself to existing temperatures varying over about 170°F. He can adapt himself to living and working at considerable altitudes where the available oxygen is much reduced. He can learn to work efficiently in conditions where the noise would make it impossible for the untrained to concentrate. He can also, through exposure come to terms with most of the pathogenic organisms which may assault him. But there is no reason why his abilities in these directions should be stretched to their limits, or even beyond them, and it is the object of those engaged in environmental health to see that they are not.

Man's capacity for work and enjoyment are unquestionably improved if his surroundings are congenial and healthy. Much has been done to improve conditions at places of work and where people live but much still remains to be done. What has been achieved in the past must be kept up to standard and progress made in fresh fields.

Relatively recently we have realized how, as man has progressed, he has also invoked forces which harm him. The problem of air pollution is now being tackled with some success but, as can be seen, there is still a long way to go. Another problem, that of noise, is only now receiving serious attention. Opinions may differ on the extent to which noise may cause harm to man but there will be no argument about the fact that he would be more comfortable with far less of it. Modern living has undoubtedly increased the amount of noise and its reduction is certainly to be desired. The Report of the Committee on the Problem of Noise will therefore be welcome.

#### Clean Air

##### *The Fog of 3rd-7th December, 1962*

Serious fog affected London and many provincial cities during the period 3rd-7th December. In the London area it was particularly dense and persistent with low temperatures reaching a minimum of 21°F. on 4th December, a day on which the thermometer never rose above freezing point. The fog extended to a height of 300-400 feet.

Atmospheric pollution rose rapidly; the maximum daily averages for both smoke and sulphur dioxide in most of inner London were for the 24 hour period ending at noon on 5th December when smoke concentrations of 4,550 micrograms per cubic metre were recorded in Hackney and 3,900 in Islington, both in parts of these boroughs where domestic smoke emissions are not yet controlled by the Clean Air Act (1956). Sites well within smoke control areas tended to have lower concentrations than similar types of area outside. Thus only 2,900 micrograms per cubic metre of smoke were recorded at St. Bartholomew's Hospital Medical College and 1,760 at County Hall, Lambeth, both in smoke controlled areas. By contrast sulphur dioxide

concentrations at the four sites were more uniformly high reaching 4,660 micrograms per cubic metre at St. Bartholomew's, 4,570 in Hackney, 4,100 at County Hall and 3,340 in Islington.

Deaths in Greater London, classified according to date of occurrence rose sharply on the first day of the fog and reached a peak on 5th December, the day of maximum pollution. The numbers fell immediately the fog ended and reached normal levels by 14th December. It is estimated 700 more people died than might have been expected had there been no fog. These excess deaths occurred mainly in the very old and almost entirely in those suffering from respiratory or cardiac disorders; they were, in fact, deaths of people already disabled and with limited life expectancy. Sicknes rates showed a similar abrupt rise; new claims for National Insurance benefit were 50 per cent. higher during the week ended 11th December than in either the preceding or succeeding weeks and pressure for the admission of patients to hospital rose to such an extent that the Emergency Bed Service issued a warning to hospitals on 5th December advising the suspension of admissions which were not urgent. This procedure is no more than the tactical application of resources which a smog still makes necessary.

Meteorologically and as regards atmospheric pollution it was the worst incident since the Great Fog of December, 1952. The fog was not quite so prolonged, lasting only 80 as compared with 96 hours in 1952, neither was it quite so dense, nor so uniformly persistent; many people who experienced both felt that the fog of December 1962 was not so irritant to the nose and eyes. Maximum pollution by sulphur dioxide reached similar levels on the two occasions. Smoke pollution is more difficult to compare as many of the instruments were grossly over-loaded in 1952. It is, however, known that smoke emissions in London have declined by 37 per cent. during the decade and it seems legitimate to believe that smoke levels were correspondingly lower in the 1962 incident.

The fog of 1952 was estimated to have caused nearly 4,000 deaths and it is obvious therefore that the 700 deaths in 1962 are much lower than might have been expected. The conjectured mortality approximates more closely to that thought to have been associated with the London fogs of January, 1956, and December, 1957, when the number of excess deaths estimated to have occurred in Greater London was 1,000 and 700-800 respectively. Scott (1963) has compared the pollution levels in the 1956, 1957 and 1962 incidents. The smoke pollution in 1962 was some 30 per cent. lower than in 1956 whereas the sulphur dioxide concentration was twice as high as in 1956. The 1957 incident was intermediate both in levels of smoke and sulphur dioxide pollution.

The significance of the incident has been reviewed both in an unpublished Interim Report to the Clean Air Council and by Scott. It is tempting to attribute the reduction in mortality to the reduced smoke pollution brought about by the Clean Air Act; some 25 per cent. of domestic properties in the County of London are now regulated by Smoke Control Orders and a similar figure will apply to the surrounding residential areas of Greater London. Other factors certainly played a part in reducing the mortality, possibly a predominant part. In 1952 the population was unaware of the dangers of polluted fog, while in 1962, and to a lesser extent in 1956 and 1957, the

public was given repeated warnings on the radio, television and in the newspapers, and persons suffering from cardiac and respiratory disorders must have been well aware of the dangers. Little is at present known about differences in the susceptibility of the population but prevailing types and levels of respiratory infections in the community and temperature levels undoubtedly influence the mortality associated with a fog. With all this in mind it would clearly be wrong to draw conclusions from one incident of lowered mortality and a period of further observation will be needed before it is possible to assess the effects of the Clean Air Act.

### *Trends of Pollution by Sulphur Compounds*

The provisions of the Clean Air Act are frequently criticised on the ground that it is said to deal with smoke and leave emissions of sulphur oxides largely unchanged. A review of current trends of sulphur pollution is therefore opportune. Conversions from coal to solid smokeless fuels, by reason of the higher calorific values of the latter may be expected to reduce sulphur emissions by 20-25 per cent. There is a trend, particularly in large cities, towards conversions to electricity, gas or oil heating, and this must likewise have an effect on reducing sulphur emissions. The electrical industry is expanding rapidly with a demand for electricity at present doubling every 10 years. The policy of building large 2,000 or 4,000 megawatt generating stations with very high chimneys is expected to reduce ground pollution to a minimum. Gas has most of its sulphur removed during manufacture. The sulphur content of oil is variable though the types used for domestic and office heating contain less sulphur than those used in heavy industry, and studies by the Warren Spring Laboratory show that conversions from coal to oil in general lead to a slight reduction in sulphur oxide emissions. Conversions from coal to other forms of heating therefore all tend to produce some reduction in sulphur oxide emissions. But this is out-weighted by the increase in numbers of domestic premises and the increase in industrial demand for power and heat so that sulphur oxide emissions for the country as a whole are tending to rise and the increase in the numbers of large blocks of buildings in the centres of cities may produce local concentration.

Anxieties about the possible harmful effects of sulphur oxides must be weighed against the fact that sulphur oxides in the quantities normally present in the atmosphere have not *per se* been shown to have an adverse effect on health, although they may be harmful when associated with other pollutants. The search for methods of either extracting sulphur from fuel or from flue gases on an economic basis has not so far been successful in spite of much work by D.S.I.R. in co-operation with industry. The rapid expansion in the use of electricity will undoubtedly continue. Most important, however, is the continued and energetic expansion of smoke control areas for there are good grounds for believing that a drastic reduction in smoke, coupled with such measures as can be taken against sulphur emissions, will go a long way towards solving the health problem.

### *Smoke Control Areas*

Reports from the Ministry of Housing and Local Government show that by the end of 1962, 1,126 Smoke Control Orders had been confirmed and a further 133 were awaiting confirmation. Smoke Control Orders either

confirmed or awaiting confirmation now cover 11 per cent. of the acreage and 17.4 per cent. of the premises in the country's "black" (i.e. heavily polluted) areas.

In the County of London some 25 per cent. of the domestic premises are now covered by Smoke Control Orders. The City of London led the way with the City of London (Various Powers) Act, 1954, and the whole of Holborn became smoke free on 3rd December, 1962. Other metropolitan boroughs are not far behind. Eleven plan to be smoke free by 1966.

### **Soft Ice-cream Machines**

Sales of soft ice-cream from instant freezers have again increased and systems of special cleaning for vehicles and equipment reported on in 1961 (Ministry of Health, 1962) continue to be followed by large operating companies. Eleven types of instant freezers for the sale of soft texture ice-cream units equipped with their own electrical generating plants and Swiss and one Swedish.

More than 3,000 of these machines are already operating in mobile ice-cream units equipped with their own electrical generating plant and are processing prepared liquid mix or reconstituted mix to which only water is added. In addition more than 1,500 of these machines are installed in shops. Although differing in design all soft ice-cream machines depend on rapid freezing of a liquid mix conveyed from a hopper direct into a horizontal freezer. The mix in the process of being frozen is propelled along the freezer barrel by a screw beater and is then served from a flush valve tap. As soon as any ice-cream is drawn off from the tap a compensating amount of liquid from the hopper is automatically introduced into the freezer. In most machines advantage is made of the refrigerated state of the freezer barrel by siting the hopper directly above the barrel, thus the liquid mix is maintained at a correct low storage temperature. Other machines have side hoppers of reduced size to ensure that the liquid mix is capable of being held at temperatures below 45°F.

For effective cleaning and sterilization all machines must be dismantled, the small working parts cleaned and reassembled; each of the manufacturers and distributors issue instruction manuals. Some users also produce operational and service manuals and a cleaning routine was published during the year jointly by the Association of Public Health Inspectors and the Ice Cream Alliance. Whilst the cleaning and sterilization process depends for its effectiveness on three basic steps, instructions on how to carry out these steps vary according to the design and make of the machines. A study of machine design and the instructions indicated that there was need for simple advice applicable to all machines in all circumstances.

Representatives of the eleven manufacturers and agents were invited to discussions with the Department and it was agreed that every machine sold in future would carry distinctive metal plaques setting out cleaning and sterilization instructions in three short sentences. Equipment manufacturers have agreed that such plaques will be placed on all existing machines when they are serviced.

Yet another new technique for distributing factory prepared hard ice-cream in soft texture form utilizing a vacuum pump was also introduced in the late autumn and before the end of the year more than 100 of these machines were operating. Sterilization and cleaning in this case is under the control of central factories.

### Transportation of Food

New trends in food handling were discussed in the Report for 1961. The changing pattern of retail food distribution now throws into sharp focus problems of efficient and hygienic transportation of food.

Some food industries have long realized their responsibilities in this field. For instance, the milk trade was influenced both by concern for the product and by consideration of public health to give special thought to the design of transport containers and the vehicles on which those containers were to be carried. Similar early thought had to be given to the transport of ice-cream at controlled temperature leading to the special design of containers and vehicles. On the other hand certain trades have persisted in simply enlarging their food transport operations without giving sufficient thought to the type of vehicle and as a result have aggravated the problems of keeping food on arrival for retail sale free from contamination. Guidance in relation to specific trades has been made available by the Department (Code of Practice No. 2. The Hygienic Transport and Handling of Meat, the Code of Practice No. 4. The Hygienic Transport and Handling of Fish, H.M.S.O.).

One of the patterns of retail trade which is rapidly gaining favour and in turn producing transport problems is the daily or regular delivery to retail shops of perishable foods and of foods subject to extreme low temperature storage. This service has grown in importance because a considerable number of retailers simply have not got the facilities in their existing premises for receiving and adequately storing bulk goods. It has become natural therefore for many traders to carry a small but regularly replenished stock rather than heavy bulk. Whilst this has relieved the problem of efficient hygienic storage of foods at retail shops it has served only to move the problem from the shop to the vehicle. This is an international problem and it is interesting to note that in countries where progress has been made this has come from co-operation between vehicle builders, vehicle operators and local public health staff. The first essential is for the operator to define clearly the nature of the commodity to be transported and to set down in detail temperature requirements and other needs so as to protect the commodity from spoilage, etc. Within those terms the vehicle designer and the builder should then produce a vehicle which is, in the opinion of the health worker, capable of being cleaned and of being maintained clean in the course of business. Instances of co-operation to this end are not unknown in the United Kingdom but have been more common in America and Western Europe. Information is available about agreed formulæ for vehicle construction between the long distance transport organizations of North America and the Federal and State Food Sanitarians. Information is also available about a specific formula for the construction of food transport, insulated and temperature controlled, in some countries of Western Europe. Coach building companies in Western

Europe have voluntarily joined together to form an organization called Transfrigoroute Europe and there is a British working group within that organization. The organization has defined the meaning of the term "insulated container" and has set down a method of measurement of the insulation lining. This voluntary code is at the moment completely binding on all food vehicle builders in eleven Western Europe countries but not yet on all vehicle builders in the United Kingdom. The basic idea of the international code is that the body is fitted to maintain a given temperature and that each vehicle will carry external recording instruments which indicate whether or not that temperature range has been exceeded.

Work on the handling of those foods which demand special care underlines the need for the present methods used for the transportation of food not so dependent on temperature control to be considered by the operators concerned. Some demands have been made to improve, for instance, transportation of fish. However, many of the vehicles, both road and rail, still in use for this purpose, are not only impossible to keep clean but actually hasten the deterioration of the product. This applies both to transportation of fish from quayside to wholesale market and from wholesale market to retailers' premises. Improvement also is required in the methods of delivery of such foods, the methods of storage prior to preparation for retail sale and the cleansing, storage and return of containers.

All these phases of transportation of food are effectively covered as far as necessary by the present wording of the Regulations made under the Food and Drugs Act relating to food hygiene. Transportation of the food is no longer the simple necessity of moving food from one place to another; it is part and parcel of the hygienic processing of that food. Much valuable thought has been given to methods of food packaging and the type of material selected for use and this work should not be vitiated by unfortunate transport methods.

Local authority experience reflected in annual reports of Medical Officers of Health indicate that considerable amounts of foodstuffs are still being surrendered or condemned as unfit for human consumption as a result of delay or mishandling during transportation. The nature of the packaging and the nature of the conveying should be such as to enable food to be still clean and uncontaminated although it has suffered occasional unavoidable delay or mishap.

### **Pasteurization of Bulk Liquid Whole Egg**

In the Report for 1957 reference was made to technical difficulties in the pasteurization of egg products. A Steering Committee was set up in October, 1959 to consider this problem, the members of which included representatives of the importers, distributors, and users of these products, as well as members of this Department, the Public Health Laboratory Service, and the Low Temperature Research Station at Cambridge. The Committee appointed a Working Group (a) to investigate a time/temperature combination which would ensure a product free from salmonellæ; (b) to provide a satisfactory chemical test to assess the degree of heat treatment given in the process, and (c) to carry out baking tests on a commercial scale to determine the acceptability of the product to the trade.

The scientific results of this work were published in the *Journal of Hygiene* for June, 1962. Pasteurization at 148°F for 2½ minutes was found to give a satisfactory product free from salmonellæ; the amylase test designed by the late Dr. Brooks, who was an original member of this Steering Committee and Working Group, provided a practical answer to the adequacy of heat treatment; and the results of the baking tests on a commercial scale were generally satisfactory.

It is now possible to consider requiring pasteurization of bulked liquid whole egg before use. The pasteurization of the various types of egg albumen would, however, require further scientific study.

## Nutrition

### *The Indices of Nutritional State*

The various records which are used as running indices of the country's nutritional state showed little change compared with previous years.

Thus no important changes in 1961 compared with 1960 were shown by the Records of National Supplies of Principal Foods moving into consumption in the United Kingdom, nor by the National Food Survey Records. Total protein consumption remained constant, though there was a 2 per cent. displacement of vegetable protein by animal protein. There was a slight increase in the fat content of the diet, and in sugar and preserves. There appears to have been no important change in growth rate of children in 1961 compared with 1960. The rejection rate of new female blood donors for 1962 was 5.8 per cent., compared with 6.2 per cent. in 1961.

### *Committee on Medical and Nutritional Aspects of Food Policy*

In order to secure the concerted views of appropriate experts in this country before the meeting in 1963 of the WHO/FAO Experts Committee on Protein Requirements this committee, together with its expert panels and sub-groups specially reviewed the complex problems associated with human protein requirements. They also studied irradiation as a means of preserving food, for, although throughout the world this use of irradiation is at present limited in extent, it is thought that in future the process may have a wider application. Other matters which came under consideration were: (1) a proposal for the use of a synthetic antioxidant in welfare cod liver oil; this was not approved as it was felt that the problem of oxidation in this product could be overcome by other means; (2) the recruitment of staff for and the planning of a pilot survey of the nutrition of pre-school children to be held in 1963; (3) a study of the dietary intakes, as recorded in the National Food Survey, of families including expectant mothers.

### *Infantile hypercalcaemia*

At intervals over the years, the British Paediatric Association has recorded the number of cases of infantile hypercalcaemia encountered by its members. The numbers of hypercalcaemia cases reported fell from 7.2 cases per month in 1953-55 to 2.7 cases per month in 1960-61. It is of interest to note that the fall did not occur immediately after the reduction in vitamin D fortification of infant foods and recommended vitamin supplements that occurred in 1957-58 following the recommendations in the Report of the Joint Advisory Sub-Committee on Welfare Foods (6.9 cases per month

were reported in 1959). However, a marked fall has now occurred in the number of cases reported and a further diminution is possible because, following the survey of vitamin D intakes made in 1960, consultations with manufacturers led to further reductions in the vitamin D content of certain proprietary preparations.

#### *Hospital Catering and Dietetics*

The special investigation into the quantity and cost of waste reported last year focused the attention of hospital authorities on the problem of reducing waste of food in catering departments. There is evidence that effective action has been taken by a number of authorities though the overall result is not yet known.

Three other investigations are currently being carried out by the Ministry's Catering Advisers. These cover:—

- (a) a comparison of different methods for service of meals to patients in hospital wards each of which allows for a choice of dish by the patients, an improved standard of presentation, and service by catering staff to relieve nurses of this duty. This study is being made in co-operation with the Organisation and Methods section of the Ministry;
- (b) an enquiry into the present and potential use of frozen foods in hospital dietaries and the effect their use may have on the design of kitchens. In addition to consideration of a wide range of frozen products a special trial has been arranged at one hospital where frozen prepared meals are to be served to a proportion of patients and staff over a period of six months. The aim of this trial is to determine whether such meals are suitable in quantity and quality for a hospital population and whether their use would result in a saving of labour sufficient to compensate for their additional cost;
- (c) the third study concerns the methods used by catering establishments to control the cost of food and has as its objective the formulation of a simple system of control which would be suitable for all types of hospital.

The last study is running parallel to, but separate from, one initiated by the Ministry's Hospital and Specialist Division in which the aim is to identify the factors causing the present wide variation in the cost of food in different hospitals. The quantities and cost of all the items of food purchased in one month were recorded in the selected hospitals. Analysis of these figures is not complete but they have already shown in which groups of foods the variations in consumption levels are widest and which have most effect on the overall cost.

The number of hospital kitchens and dining rooms provided in new buildings, as distinct from modernization of existing units, is steadily increasing. Several new catering blocks which have been opened during the year show the pattern of modern, well planned and well equipped facilities which is the aim for the Service as a whole. The convenience and pleasant working conditions which these units provide are a source of great encouragement to hospital catering staffs.

#### *References*

- Ministry of Health, 1962. Report for the year 1961. Part II. London, H.M.S.O. p. 109.  
Scott, J. S., 1963. *Medical Officer*, 109, 108.

## IX

### DENTAL HEALTH SERVICES

#### *Dental Manpower*

The total number of dental practitioners registered at 1st January, 1963, was 16,748, an increase of 129 over the previous year. During the year 825 new names were added to the Register and 161 were restored. Amongst the new registrations were 171 Commonwealth and 25 foreign dentists.

#### *Report on Dentistry*

Early in the year a Report on Dental Health and Dental Services was published for the Nuffield Provincial Hospitals Trust. This consisted of an assessment of available data and underlined the fact that whereas statistics on treatment were adequate, there is little information on the prevalence of dental disease in the whole population. The Report recommended a special enquiry in one or more localities into all aspects of dental health (bringing within its scope those who do not go to the practitioner as well as those who do) and also a study of the pattern of dental practice.

#### *Maternity and Child Welfare*

In 1962, 31,094 mothers and 53,542 children were treated at local authority clinics. Compared with previous years it was expected that there would be a reduction in the number of mothers treated because greater use is made of the general dental services now that dentures are provided without charge (Table I).

More local authorities are calling children for dental examination about their third birthday; there has been an increase in numbers treated and in the conservative treatment carried out. Table I shows that for every 100 children treated the number of conservations (135) exceeded the number of extractions (122), an improvement on previous years.

#### *Expectant and Nursing Mothers*

Table II shows the use that was made of Executive Council and Local Authority Dental Services in 1961. A total of 593,909 courses of treatment were provided for expectant and nursing mothers, an increase of 131,645 courses compared with five years ago. Demand varied according to the region and distribution of dentists. In the south of England between 0.51 and 0.60 courses of treatment were completed per person eligible; corresponding figures were from 0.31-0.36 in the rest of England, and 0.25 in Wales. There was an overall average of 0.42 for all regions.

TABLE I

*Dental Health Services for England and Wales*  
*Treatment completed per 100 cases treated: 1962*  
*Figures in brackets are those for 1961*

| Mothers                    | Fillings  | Scalings                 | Extractions | General Anaesthetics | Dentures                        |
|----------------------------|-----------|--------------------------|-------------|----------------------|---------------------------------|
| England C.C. ...           | 167 (156) | 46 (48)                  | 231 (296)   | 28 (34)              | 43 (56)                         |
| England C.B. ...           | 97 (94)   | 31 (32)                  | 288 (310)   | 46 (44)              | 49 (51)                         |
| Wales ...                  | 61 (61)   | 15 (18)                  | 256 (331)   | 54 (62)              | 42 (49)                         |
| Total England and Wales... | 130 (123) | 38 (39)                  | 255 (305)   | 38 (41)              | 46 (53)                         |
| Children                   | Fillings  | Silver Nitrate Treatment | Extractions | General Anaesthetics | Ratio Conservations Extractions |
| England C.C. ...           | 116 (105) | 68 (67)                  | 103 (112)   | 43 (46)              | 1.71 (1.56)                     |
| England C.B. ...           | 52 (47)   | 33 (48)                  | 142 (148)   | 66 (68)              | 0.66 (0.58)                     |
| Wales ...                  | 25 (22)   | 11 (11)                  | 184 (190)   | 96 (89)              | 0.20 (0.19)                     |
| Total England and Wales... | 91 (77)   | 44 (48)                  | 122 (131)   | 55 (57)              | 1.13 (1.01)                     |

TABLE II

*Dental Treatment for Nursing and Expectant Mothers—1961.*

| G.R.O. Standard Region          | Estimated number of maternities (M) | Persons eligible for treatment (M X 1½) | Number of Treatments |               |         | Courses of treatment per person eligible |
|---------------------------------|-------------------------------------|-----------------------------------------|----------------------|---------------|---------|------------------------------------------|
|                                 |                                     |                                         | E.C. Services        | L.A. Services | Total   |                                          |
| All Regions ...                 | 817,000                             | 1,429,750                               | 557,490              | 36,419        | 593,909 | 0.42                                     |
| 1. Northern ...                 | 61,000                              | 106,750                                 | 28,600               | 3,283         | 31,883  | 0.30                                     |
| 2. East and West Ridings ...    | 74,000                              | 129,500                                 | 41,850               | 4,228         | 46,078  | 0.36                                     |
| 3. North Western ...            | 122,000                             | 213,500                                 | 60,940               | 5,869         | 66,809  | 0.31                                     |
| 4. North Midland ...            | 66,000                              | 115,500                                 | 35,820               | 2,435         | 38,255  | 0.33                                     |
| 5. Midland ...                  | 89,000                              | 155,750                                 | 45,270               | 6,137         | 51,407  | 0.33                                     |
| 6. Eastern ...                  | 68,000                              | 119,000                                 | 41,060               | 1,435         | 42,495  | 0.36                                     |
| 7. London and South Eastern ... | 181,000                             | 316,750                                 | 184,880              | 6,505         | 191,385 | 0.60                                     |
| 8. Southern ...                 | 53,000                              | 92,750                                  | 53,280               | 677           | 53,957  | 0.58                                     |
| 9. South Western ...            | 57,000                              | 99,750                                  | 49,290               | 2,047         | 51,337  | 0.51                                     |
| 10. Wales ...                   | 46,000                              | 80,500                                  | 16,500               | 3,803         | 20,303  | 0.25                                     |

#### *Children under 5 years*

Schemes for the routine examination of children round about their third birthday have been adopted by a number of local authorities when staffing permits. Treatment returns show little change in the ratio of conservations to extractions.

The results of a previous survey on staff were published in the Report for 1957, page 176. These showed that on 1st January, 1958, the equivalent of 1,099 full-time officers were employed, viz. 873 full-time and 644 part-time officers. The returns for 31st March, 1962, show that there has been a loss of four full-time officers but a gain of 196 part-time officers, an increase of 79 in terms of full-time officers. The number of staff had increased in 55 local authorities, it had decreased in 31 and in 59 there was no appreciable change. New appointments now exceed resignations and retirements and 67.7 per cent. of full-time and 84.5 per cent. of part-time officers recruited in 1961-62 were under 40 years of age. These staff, of course, are mainly engaged in the School Dental Service.

There has been much discussion of possible methods of promoting recruitment and efficiency in local authority dental services and a joint circular which discussed various factors was issued with the Ministry of Education during the year. In the preparation of this circular much help had been received from informal conferences with a group of Chief Dental Officers and Medical Officers of Health.

### Dental Treatment for Children of School Age

School children are able to obtain free dental treatment from three sources. A few are treated in the dental teaching hospitals, a substantial number are treated in the School Dental Service, but the much larger amount of dental treatment now provided by general dental surgeons working in the National Health Service is often overlooked.

The treatment given to children under 15 has steadily risen from 1950 when some 840,000 estimates for this group of patients were submitted to the Dental Estimates Board, to 4,000,000 estimates in 1961. This represents 28 per cent. of all estimates received.

The figures for the dental treatment of children by the Dental Officers employed in the Local Authority Services, which are available in the latest biennial report "The Health of the School Child" for 1960 and 1961 are given below, together with those for General Dental Practitioners in the National Health Service.

|                                                                                   |                          |
|-----------------------------------------------------------------------------------|--------------------------|
| Number of children in state-maintained schools (aged five to 15 inclusive) ... .. | 7,040,462                |
| Number examined by school dental officers                                         | 3,777,040 (54 per cent.) |
| Number of these found to require treatment                                        | 2,393,674 (63 per cent.) |
| Number treated ... ..                                                             | 1,226,679                |

The number of courses of treatment provided for children aged five to 14, inclusive, in the National Health Service was 3,185,000 full courses and 507,000 emergency ones and for the age group 15 to 17, an additional 1,048,000 full courses and 189,000 emergency were provided. It should be noted that these figures refer to courses of treatment and not to individual patients. The figures for children of age 15 treated in the National Health Service are included in those of the adolescent group aged 15 to 17, inclusive.

|                                  | School Dental Service | General Dental Services N.H.S. |                 |                  |
|----------------------------------|-----------------------|--------------------------------|-----------------|------------------|
|                                  |                       | Ages 5-15 incl.                | Ages 5-14 incl. | Ages 15-17 incl. |
| Permanent teeth filled ... ..    | 1,463,594             | 3,903,000                      | 2,981,000       |                  |
| Deciduous teeth filled ... ..    | 298,048               | 1,218,000                      |                 |                  |
| Permanent teeth extracted ... .. | 417,317               | 728,000                        | 585,000         |                  |
| Deciduous teeth extracted ... .. | 961,155               | 1,534,000                      |                 |                  |

An indication that earlier and more regular treatment of children is gradually taking place is given by the improvement in the ratio of emergency to full courses of treatment in the General Dental Services.

*Number of full courses of treatment to each emergency*

| Year        | Age Groups |     |       |       |
|-------------|------------|-----|-------|-------|
|             | 0-4        | 5-9 | 10-14 | 15-17 |
| 1957 ... .. | 2.6        | 3.1 | 5     | 2.5   |
| 1958 ... .. | 2.6        | 3.5 | 5.6   | 3.4   |
| 1961 ... .. | 4.8        | 5.0 | 7.8   | 5.5   |
| 1962 ... .. | 5.7        | 5.5 | 10.0  | 6.7   |

The improvement in the number of permanent teeth conserved to each one extracted can also be shown.

*Number of permanent teeth filled to each one extracted*

| Year        | Age Groups |       |       |
|-------------|------------|-------|-------|
|             | 5-9        | 10-14 | 15-17 |
| 1957 ... .. | 4.3        | 3.8   | 3     |
| 1958 ... .. | 4.4        | 3.9   | 3.2   |
| 1961 ... .. | 7.0        | 5.0   | 5.1   |
| 1962 ... .. | 7.4        | 5.5   | 5.1   |

## Research

Although the programme of dental research in this country merits further expansion, for some years there has been an increasing number of investigations into dental problems in the teaching hospitals, universities and the Armed Forces. The increase is well illustrated by an examination of the records of the British Division of the International Association for Dental Research.

## Yearly Meetings

| Year        | Attendance | Number of Papers Read | Place      |
|-------------|------------|-----------------------|------------|
| 1953 ... .. | 30         | 13                    | London     |
| 1954 ... .. | 35         | 15                    | Birmingham |
| 1955 ... .. | 64         | 25                    | London     |
| 1956 ... .. | 85         | 30                    | Liverpool  |
| 1957 ... .. | 90         | 36                    | London     |
| 1958 ... .. | 88         | 38                    | Newcastle  |
| 1959 ... .. | 105        | 57                    | Manchester |
| 1960 ... .. | 122        | 42                    | London     |
| 1961 ... .. | 120        | 48                    | Bristol    |
| 1962 ... .. | 132        | 62                    | Sheffield  |

This Association holds a yearly two-day meeting at one of the universities. The 62 papers read last year included anatomical, pathological, chemical, physiological and clinical problems, together with some papers on dental materials. Each member is actively engaged in dental research work and has published papers. Members are also allowed to sponsor papers by junior research workers under their supervision. These meetings provide a valuable forum for discussion and as more space for research becomes available in the new teaching hospitals it is expected that the activities of the International Association for Dental Research in this country will grow.

During the year, the Department of Scientific and Industrial Research in consultation with the Ministry formed a committee which has as its main function the co-ordination of research into dental materials and equipment. The first full meeting of this Committee was held on 5th November. It will survey current research, encourage new projects, allocate priorities and decide where the research can best be undertaken.

### Fluoridation

The first 5 years of the fluoridation of water studies in the United Kingdom were completed in 1961 and a report on the results so far achieved was published in the series on Public Health and Medical Subjects (No. 105 H.M.S.O.). The details need not be repeated but the following tables give the findings for the three study areas combined and the three control areas combined and show the striking changes which had occurred in 5-5½ years of fluoridation. Whatever measurement is used, the improvement in the dental condition of children in the study areas is obvious.

(a) *Average Number of Carious Teeth per Child*

| Children aged   | Study Areas                                              |      |                              |                                                          | Control Areas |                              |    | 'Adjusted†<br>percentage<br>reduction<br>in study<br>areas |
|-----------------|----------------------------------------------------------|------|------------------------------|----------------------------------------------------------|---------------|------------------------------|----|------------------------------------------------------------|
|                 | Average number<br>of carious<br>teeth per child<br>(dmf) |      | Per-<br>centage<br>Reduction | Average number<br>of carious<br>teeth per child<br>(dmf) |               | Per-<br>centage<br>Reduction |    |                                                            |
|                 | Baseline                                                 | 1961 |                              | Baseline                                                 | 1961          |                              |    |                                                            |
| 3 years* ... .. | 3.80                                                     | 1.29 | 66                           | 3.53                                                     | 3.32          | 6                            | 64 |                                                            |
| 4 years* ... .. | 5.39                                                     | 2.31 | 57                           | 5.18                                                     | 4.83          | 7                            | 54 |                                                            |
| 5 years† ... .. | 5.81                                                     | 2.91 | 50                           | 5.66                                                     | 5.39          | 5                            | 47 |                                                            |
| 6 years† ... .. | 6.49                                                     | 4.81 | 26                           | 6.32                                                     | 6.22          | 2                            | 24 |                                                            |
| 7 years† ... .. | 7.06                                                     | 6.05 | 14                           | 7.08                                                     | 6.89          | 3                            | 11 |                                                            |

dmf=Decayed, missing or filled teeth.

\* Full dentition (20 teeth).

† Deciduous canines and molars only (because of uncertainty arising from the natural shedding of incisor teeth).

‡ That is, after adjustment for the change in the control area.

(b) *Percentage of Children free from Caries*

| Children aged | Study Areas                                   |      |                             | Control Areas                                 |      |                             | Adjusted†<br>percentage<br>increase in<br>study areas |
|---------------|-----------------------------------------------|------|-----------------------------|-----------------------------------------------|------|-----------------------------|-------------------------------------------------------|
|               | Percentage of<br>Children free<br>from Caries |      | Per-<br>centage<br>Increase | Percentage of<br>Children free<br>from Caries |      | Per-<br>centage<br>Increase |                                                       |
|               | Baseline                                      | 1961 |                             | Baseline                                      | 1961 |                             |                                                       |
| 3 years* ...  | 32.5                                          | 60.5 | 86                          | 37.9                                          | 39.3 | 4                           | 79                                                    |
| 4 years* ...  | 22.2                                          | 42.0 | 89                          | 20.6                                          | 26.9 | 31                          | 44                                                    |
| 5 years† ...  | 8.1                                           | 30.9 | 281                         | 8.4                                           | 12.1 | 44                          | 165                                                   |
| 6 years† ...  | 6.2                                           | 14.0 | 126                         | 5.8                                           | 8.4  | 45                          | 56                                                    |
| 7 years† ...  | 4.0                                           | 7.7  | 93                          | 4.8                                           | 5.4  | 26                          | 53                                                    |

\* Full dentition (20 teeth).

† Deciduous canines and molars only. (Because of uncertainty arising from the natural shedding of incisor teeth.)

‡ That is, after adjustment for the change in the control areas.

(c) *Percentage of Children with 10 or more Carious Teeth*

| Children aged | Study Areas                                                            |      |                              | Control Areas                                                          |      |                              | Adjusted†<br>percentage<br>reduction<br>in study<br>areas |
|---------------|------------------------------------------------------------------------|------|------------------------------|------------------------------------------------------------------------|------|------------------------------|-----------------------------------------------------------|
|               | Percentage of<br>Children with<br>10 or more<br>carious teeth<br>(dmf) |      | Per-<br>centage<br>Reduction | Percentage of<br>Children with<br>10 or more<br>carious teeth<br>(dmf) |      | Per-<br>centage<br>Reduction |                                                           |
|               | Baseline                                                               | 1961 |                              | Baseline                                                               | 1961 |                              |                                                           |
| 3 years* ...  | 14.9                                                                   | 1.7  | 89                           | 14.2                                                                   | 13.2 | 7                            | 88                                                        |
| 4 years* ...  | 21.4                                                                   | 3.6  | 83                           | 19.0                                                                   | 19.0 | Nil                          | 83                                                        |
| 5 years† ...  | 14.6                                                                   | 1.6  | 89                           | 13.6                                                                   | 11.5 | 15                           | 87                                                        |
| 6 years† ...  | 17.4                                                                   | 8.8  | 49                           | 16.4                                                                   | 15.2 | 7                            | 45                                                        |
| 7 years† ...  | 21.4                                                                   | 15.4 | 28                           | 22.5                                                                   | 22.1 | 2                            | 27                                                        |

dmf=Decayed, missing or filled teeth.

\* Full dentition (20 teeth).

† Deciduous canines and molars only (because of uncertainty arising from the natural shedding of incisor teeth).

‡ That is, after adjustment for the change in the control areas.

The studies in the United Kingdom were so designed that the results could be compared with those obtained in America where fluoridation has been in operation since 1945. So far, only the findings for the deciduous teeth of children aged 4 and 5 years could be compared but the report showed that those in this country were in line with American experience. At 5 years of age the incidence of caries was reduced by 45 per cent. in America and by 47 per cent. in the United Kingdom. It is reasonable to expect therefore that the longer term effects of fluoridation, on the permanent teeth of older children, will also be similar. After 9 to 10 years of fluoridation in the United States and Canada this amounted to a reduction in caries incidence in the permanent teeth of more than 50 per cent. Later

reports published after 15 years in Grand Rapids, Michigan (Arnold *et al.*, 1962) and after 14 years in Brantford, Ontario (Brown, 1962), showed that this improvement had been maintained. The Canadian report which gave data for both the fluoridation and control areas showed clearly that the dental condition of children in the fluoridation area continued to be greatly superior to that of the children in the control area. At 14 to 15 years of age children in the fluoridation area had only 3.9 decayed, missing or filled teeth compared with 8.04 in the control area and 16 per cent. of the children at this age were free from caries in the fluoridation area compared with only one per cent. in the control area.

### *Alternative Methods*

Alternative means of using fluoride for the prevention of caries continue to be of interest and one which is being thoroughly investigated at present in this country is the use of dentifrices containing stannous fluoride. Following a recommendation made by the Dental Health Committee of the British Dental Association, controlled studies have been undertaken by some of the dental schools. Trials with several proprietary brands of toothpaste are being made on the school children in at least six areas in the country with the full co-operation of the Local Authorities concerned. The base-line dental examinations have been completed but the studies are planned to extend for at least three or four years so that the effectiveness of the dentifrices can be reliably assessed. *In vitro* studies by Jenkins (1961) suggest that caries reduction may be due as much to the stannous ion as to the fluoride ion.

### *Laboratory Studies*

The mode of action of fluoride in bringing about a reduced incidence of dental caries has not yet been fully determined but it appears to be associated with an accumulation of fluoride in the surface layers of the dental enamel. Several theories as to the actual mechanism involved have been put forward. The one which is as yet most generally accepted is that it decreases the solubility of the dental enamel, the hydroxyapatite being replaced by relatively insoluble fluorapatite through ion exchange reaction. In areas with high concentrations of fluoride in the water the fluorapatite content of the enamel is correspondingly high, especially in the surface layer. Fluorides applied topically in high concentrations have other reactions, a double decomposition probably leading to the deposition or absorption of relatively soluble calcium fluoride. The mechanism of such methods which includes the use of fluoride toothpaste is different from that of ingested fluoride and is not yet understood.

Another theory is that since fluoride favours the precipitation of calcium phosphate from solutions such as saliva it might intermittently reverse the removal of calcium salts and bring about a re-mineralization of an enamel lesion, thus slowing up the development of a carious cavity.

A third theory is that as a known enzyme inhibitor fluoride exerts an anti-bacterial and anti-enzymatic effect on acid production at the actual teeth surface.

Investigations into the mechanism of action of fluoride by Jenkins of Durham University and by Hardwick and Fremlin of Birmingham University were mentioned in the Annual Report for 1958. In further joint investigations, estimations have been made of the fluoride content of samples of plaque, that is the muco-bacterial film which is present usually in minute amounts on the tooth surface. These samples were obtained from children in North Shields where the water has a low fluoride concentration and from West Hartlepool where the concentration is 2.0 p.p.m. Both were reported to be surprisingly high and variable, but the concentration in West Hartlepool was nearly double that of the North Shields sample (47 p.p.m. and 25 p.p.m.F. respectively). The variation from individual to individual did not appear to be related to tea drinking. Investigations at present in progress are concerned with the form of the fluoride in the plaque. It must be bound chemically but it is not yet known if it is ever released in ionic form. The enzymes of the plaque have about the same sensitivity to added fluoride as to those of saliva. The addition of 50 p.p.m. of fluoride stops acid production altogether and as little as 6 p.p.m. has some effect but it has not yet been possible to detect the action of lower concentrations. It is now planned to test acid production in plaques from North Shields and West Hartlepool. If the two plaques differ in their powers of producing acid when sugar is added, this will support the anti-enzymatic theory on the action of fluoride.

#### References

- Arnold, F. A. and others, 1962. *J. Amer. dent. Ass.*, 65, 780.  
Brown, H. K., 1962. *Canad. publ. Hlth J.*, 53, 401.  
Jenkins, G. N., 1961. In: *Caries Symposium, Zürich*. Berne, Huber, p. 104.

### Hospital Dental Services

Dental Surgery was not included in the scope of the working party on Medical Staffing Structure in the Hospital Service (the Platt Report) and consequently there was no mention of dentists in the Report. However, the British Dental Association and the Faculty of Dental Surgery of the Royal College of Surgeons have made representations to the Standing Dental Advisory Committee and it is anticipated that the Dental Staffing in hospitals will be reviewed in a similar manner to the review of medical staff now in progress. The routine dental treatment of patients in long stay hospitals is thought to need particular attention.

### Orthodontics

Estimates approved for orthodontic treatment under the General Dental Service during 1962 amount to 90,000. This alone represents an annual intake appropriate to approximately 13 per cent. of the child population requiring treatment at some time. The annual increase in demand shows no sign of abating and the figure for the General Dental Service was 7 per cent. in advance of 1960.

General Dental Service returns are in terms of estimates rather than individuals and it is also likely that returns from other sources may include more than one course of treatment for the same individual. Nevertheless, duplication of this nature would probably be of small degree and unlikely to affect the percentage materially. It may be therefore that the estimates

made 15 years ago that 15 per cent. of the child population might need orthodontic treatment will need revision.

The Consultant Orthodontic Service continues to expand and consultant appointments are being made at a rate consistent with the availability of suitably qualified and experienced practitioners, but there are still two regions without consultants at all. During 1961, three more orthodontic consultants were appointed to Regional Hospital Boards bringing the total to 23. There are also 19 with the Teaching Hospitals. This represents a whole-time equivalent of  $34\frac{1}{2}$  orthodontic consultants. The simpler forms of orthodontic treatment are being carried out by a very large number of general dental surgeons with no additional qualifications in orthodontics, but it is interesting to note that 184 practitioners in England and Wales have registered additional orthodontic qualifications.

#### Number of Dentists in General Dental Services

The Table below shows the number of dentists in the general dental services for the years 1959 to 1962 and the increase in the number of courses of treatment carried out by each dentist. Three suggestions are offered in explanation of this increase: in the first place there are improvements in dental equipment, secondly there is the greater efficiency in practice management, and thirdly a greater proportion of practitioners are now in the younger age groups and they can work for long hours at a greater speed.

|                                                                                                  | 1959       | 1960             | 1961             | 1962             |
|--------------------------------------------------------------------------------------------------|------------|------------------|------------------|------------------|
| Number of dentists in General Dental Service at end of year ...                                  | 10,145     | 10,254           | 10,450           | 10,540           |
| Number of courses of treatment (excluding emergency treatment) during year ...                   | 10,700,460 | 11,539,290       | 12,257,445       | 13,372,000       |
| Number of courses of treatment (excluding emergency treatment) completed per dentist during year | 1,054      | 1,125<br>(+6.7%) | 1,173<br>(+4.2%) | 1,268<br>(+8.1%) |
| Number of emergency treatments during year ...                                                   | 2,173,420  | 2,073,646        | 2,007,742        | 1,934,200        |
| Number of emergency treatments per dentist ...                                                   | 214        | 202<br>(-5.6%)   | 192<br>(-4.9%)   | 183<br>(-4.3%)   |
| Number of teeth filled per course. All Courses but excluding emergency treatment ...             | 2.04       | 2.08             | 2.08             | 1.93             |

The Table gives figures for the average number of teeth filled over all courses of treatment (excluding emergency treatment). These figures are remarkably constant, and, coupled with an annually decreasing volume of emergency treatments may show that more patients are obtaining regular dental treatment.

TABLE III

*General Dental Services. Regional Dental Officers  
Statement of References received and cleared for  
the period 24th December, 1961, to 22nd December, 1962*

| References                                    | England | Wales | Total  | Total for 1961 |
|-----------------------------------------------|---------|-------|--------|----------------|
| Pending at start of period ... ..             | 2,654   | 206   | 2,860  | 2,563          |
| Received from D.E.B. Estimates ... ..         | 9,367   | 416   | 9,783  | 9,635          |
| Received from D.E.B. Treatments ... ..        | 17,528  | 1,447 | 18,975 | 17,863         |
| Received from Dentists ... ..                 | 1,364   | 66    | 1,430  | 1,486          |
| Received from Local Executive Councils ... .. | 477     | 27    | 504    | 621            |
| Totals ... ..                                 | 31,390  | 2,162 | 33,552 | 32,168         |
| References cleared by examination ... ..      | 24,426  | 1,813 | 26,239 | 25,136         |
| References cleared by cancellation ... ..     | 4,106   | 179   | 4,285  | 4,172          |
| Totals ... ..                                 | 28,532  | 1,992 | 30,524 | 29,308         |
| Pending at close of period ... ..             | 2,858   | 170   | 3,028  | 2,860          |

The number of cases referred for the advice of a Dental Officer, by the Dental Estimates Board, during 1962, shows an increase of 1,260 or 4.6 per cent. over the previous year. Of this increase, 148 were cases where the Board sought the Dental Officer's advice before approving an estimate, whilst 1,112 were cases referred after treatment had been completed.

The Board's references of completed treatments now amount to 66 per cent. of the whole. These references indicate the standard of treatment provided under the Service. In 1962 only 0.7 per cent. of such cases were found to be unsatisfactory compared with 2 per cent. in 1960. Those cases examined prior to treatment where the Dental Officer completely disagreed with the practitioner's estimate also came to less than one per cent. of such references.

## NURSING

Accelerated changes over the past year have brought into focus the important subject of hospital nursing administration. The ten-year plan for hospitals based upon the district general hospital, which will care for general medical and surgical cases, for maternity, psychiatric, geriatric and pædiatric patients, calls for a different nursing administration than that commonly seen today. The managerial function of the senior nurse has changed in recent years, discarding such things as catering and domestic management and concentrating on the nursing service to patients in the various specialties and on the education of the student, whose training now embraces a much wider variety of techniques and skills than hitherto. Certain questions are pertinent. What exactly are the managerial functions of a hospital nurse administrator today? What kind of help does she need to fulfil her responsibilities, and how should she be trained to fill this post? How can the senior nurse administrator over a large group of hospitals plan and integrate the work and the training of nurses?

The developing co-operation between hospital and domiciliary services, the increased annual number of patients being nursed in hospitals, the efforts to make hospitals more "homelike" and problems of communication are some of the present day features which have called for greater managerial ability of the nurse in charge of ward or department. Rapid advances in the field of medical science and the trend for interdependence of certain branches of medicine have increased the need to save the skills of trained nurses for the care of the critically ill. Shorter working hours, longer holidays, and part-time nurses have made it more difficult to maintain stability in the nursing team. This necessitates a reorganization of ward staff to give the ward sister the support she requires for her responsible work. Staff nurses are qualified women whose functions include that of deputizing for sisters and this position should be acknowledged and accorded to them on appointment. Similarly, the proper function and place of the enrolled nurse in the ward staffing should be defined. Nursing auxiliaries and clerks also contribute towards the stability of the team and enable students and pupils to benefit from clinical instruction and devote their time to work which requires nursing skills.

*Effect of Married and Part-time Women Working*

Married nurses and midwives have made a most important contribution to the nursing and midwifery services and will play an increasing part. They may need help to regain confidence, relearn skills and reconcile home claims with employment. Despite the difficulties many, but not all, hospitals have shown adaptability and ingenuity in fitting part-time married nurses and midwives into hospital time-tables and nurses' duty schedules. The number of part-time trained nurses and midwives working in hospitals rose by about 5,000 during the year under review, whilst the number working in the local health authority services has also risen.

### *Visiting of Patients in Hospitals—Effect on Nursing and Nurses*

The relaxation of rigid visiting hours has been successful where nurses and visitors have shown an awareness that visiting should be in the best interests of the patient and can even prove to be excessive. In hospitals where the views of doctors, nurses and patients have been considered, and where visitors have been understanding, it is generally reported that patients have not been over-tired. Where the ward plan is good and proper consultation and adequate preparation has taken place, nurses have been able to carry out patient-care in privacy, whilst neighbouring patients have enjoyed being visited. Notes issued by hospitals for the guidance of patients' visitors have resulted in co-operation between the visiting public and the hospitals. More liberal visiting has been said to be especially beneficial for patients in children's wards, chronic sick and geriatric units.

### *Nursing Studies*

*Nurse Staffing Standards.* Reference was made last year to the studies being undertaken to ascertain nursing staff complements. Following the preliminary investigations in 1961, a detailed study has been undertaken in one regional board general hospital of approximately 500 beds. Medical and surgical wards have been studied and the method chosen was continuous observation of the work done by nurses. The purpose of the exercise was to record the nursing care given to individual patients in certain categories; in this way it was possible to assess the nursing time given to the patients who were classified according to their dependency on the nurse. The result is a detailed record of all the nursing care given to individual patients by various grades of nurses in the ward. In addition there is a record of the time involved in communal care and in administrative and other duties. Plans have been made to study wards in other regional board hospitals of comparable size and nature to the first.

When the study is complete it is hoped that all the information thus obtained can be assembled in a way which will help hospitals to assess the hours of nursing time necessary to give a reasonable standard of nursing care to different types or categories of patients.

*Nursing Staff Requirements in Provincial Teaching Hospitals.* Visits have been made to a number of provincial teaching hospitals to ascertain the present ratio of nurses to patients in medical and surgical wards. In addition a preliminary assessment is being made of additional work undertaken by nurses in the wards which may be ascribed to the special functions of teaching hospitals. This study continues.

Similar studies to those already in progress in two general regional hospital board hospitals and provincial teaching hospitals, are being prepared for hospitals caring for the mentally sick and mentally subnormal.

*Progressive Patient Care.* A departmental working party on Progressive Patient Care has prepared an interim report which was published in the Monthly Bulletin in November, 1962. The main part of the report was concerned with intensive care units, and included suggestions on the planning and setting up of such units and further experimentation in this field. It was suggested that about 2 per cent. of medical and surgical patients in general hospitals require intensive care. In some hospitals however the figure may rise as high as 5 per cent.; it is therefore essential that hospitals

assess their own individual requirements. The intensive care unit is planned for patients needing—

- (a) continuous observation and care of registered nurses;
- (b) frequent supervision and treatment of medical staff;
- (c) the use of complicated technical apparatus.

*Staffing of the Intensive Care Unit.* Whilst no precise recommendations about the numbers of staff is made, the unit should be in charge of a sister. Registered nurses must be on duty throughout the 24 hours. There may well be a place for the experienced enrolled nurse in the nursing team, and senior student nurses would benefit from experience and practise in all aspects of the care of the critically ill. Essentially, however, the work of the unit calls for trained nurses.

The working party is now continuing with a statistical survey of those patients who require little nursing care.

### **Nurse Training**

There have been important advances in nurse training in 1962; the General Nursing Council's changes in the preliminary and final general examination, the Minister's approval to the closure of the Fever Register at the end of 1967 and to an experimental syllabus of training in general nursing. The new syllabus is considered to be a marked step forward in general nurse training and education provided for the co-ordination of theory and practice throughout the course and removing the two distinct sections in preparation for the present preliminary and final examination.

The development of this experimental syllabus will be followed with interest. One thing would seem important in introducing such a syllabus and that is the need for training schools and students to adhere to a pre-planned programme. This can be ensured, to a great extent, by the acceptance of staff such as enrolled nurses and nursing auxiliaries in the wards and departments, thus relieving the students of the necessity to "fill gaps" arising from sickness, special and annual leave.

Consideration is also being given to a revision of the syllabus of training for pupil nurses in general hospitals, and to the introduction of a syllabus of training for pupils in psychiatric hospitals. It is necessary to keep such trainings on a practical level, to attract a larger number to become enrolled nurses, in order to meet the demand both in the hospital and community services. It has yet to be seen whether the re-introduction, on 1st July, 1962, of a minimum educational standard for student nurses undertaking general and sick children's nursing will reduce the number of students entering training but it should reduce wastage during training.

*Preparation for Nursing.* There is some evidence that in addition to the 18 year olds some older married women are being attracted to nursing training. Such students present distinct problems, one being the readjustment of domestic life and responsibilities so that the trainee may feel free to concentrate on her professional training, whether undertaken in a full or part-time course.

For girls leaving school or centres of further education before the age of 18, there is the much discussed problem of how he or she should "bridge

the gap". This period varies from one to two years. Many take up employment outside hospital which may be a good introduction to nurse training. Others participate in hospital cadet schemes, where they learn something of hospital work whilst also undertaking some further education. The method of bridging this gap is clearly a matter of individual choice in which the availability of a cadet scheme may often be of help.

#### *Supplementary Nursing Service*

National Hospital Service Reserve membership has shown a consistent increase both of trained nurses and auxiliary members. The competition for the Minister's Cup held in November, 1962 was based on bedside nursing procedures, which form part of the training of members for the Reserve. The eliminating rounds of this competition attracted a greater number of teams than in any previous year.

Many hospitals have learnt that, although it takes time and energy to organize and train a supplementary nursing service, much worthwhile voluntary help has been obtained as a result. The St. John Ambulance Brigade and the British Red Cross Society continue with their valuable assistance in training auxiliaries, and have provided practical help to hospital nursing staff. Voluntary help is growing in importance in the work of our hospitals, and some day-to-day services are completely maintained by voluntary effort.

Many senior hospital nurses have been active in organizing practical training for auxiliary members of the Reserve, as well as arranging courses for trained nurse members. Fifty-seven senior nurses attended a course held at the Civil Defence Staff College, Sunningdale.

#### *Midwifery*

The continuous rise in the birth rate has inevitably increased the work of midwives both in hospitals and in domiciliary practice. The numbers of both whole and part-time midwives and the use of other grades of staff has shown a steady increase, but the increases barely keep pace with the increase in births and more are needed to meet existing shortage as well as any further increase in births. If the midwife is to fulfil her function and maintain a high degree of efficiency a fresh appraisal of her work is necessary, particularly since there has been a change in techniques during the lying-in period. The hospital midwife should be relieved of certain of the duties she may still undertake and she herself must be prepared to relinquish them—e.g. some routine nursing procedures, housekeeping responsibilities and clerical work. The centralization of stores and equipment and sterilization of dressings and instruments are ways of assisting in this.

Many maternity hospitals and units have revised the existing routine work to allow greater flexibility and more liberal visiting in the wards. Facilities for husbands and another near relation to be present during early labour, if not during the whole period are increasing where the premises allow and the patient wishes it. Where staff other than trained nurses are employed it is important that they are given a proper introduction to the work and a short period of training for the specific duties undertaken in maternity hospitals and units.

*Domiciliary Field.* A greater degree of co-operation is evident and many changes are emerging for example, the grouping of two or more midwives,

the provision of night rota schemes, and the employment of part-time midwives to undertake nursing duties, particularly of those patients discharged early from hospital. The introduction of sterilized packaged equipment improves safety and saves time.

*Obstetric Nursing Training.* Following the joint statement of the General Nursing Council and Central Midwives Board on obstetric nurse training, 54 schemes have been established and 52 are under consideration. Many of the schools approved were already Part I midwifery training schools and a small number are able to offer both Part I and II training. There are also schemes for a four months Part I training to follow the three months obstetric course. For some time to come there will, therefore, be either the Part I and Part II training each of six months duration or three months obstetric training, followed by four months Part I and six months Part II. Finally, but not for some time yet, it is envisaged that a ten months training will take the place of the existing Parts I and II if the nurse concerned has already completed a three months obstetric course during her general training. A certain amount of flexibility is necessary to enable these schemes to run side by side during this transitional period.

### **Psychiatric Nursing**

Rapid changes are still taking place in psychiatric hospitals. In hospitals for the mentally ill, the emphasis is on more freedom in communication and more personal relationship with patients. Where the staff situation is favourable, nurses look after their own small group of patients, which leads to more detailed observation and reporting on the effect of various forms of treatment. Both in hospitals for the mentally ill and for the mentally subnormal this change of attitude is affecting the organization of the work. Barriers which existed between the men's and women's parts of the hospital are less rigid and experiments in combining the whole hospital under one nursing head are taking place for therapeutic as well as for administrative reasons. In hospitals for the mentally subnormal an increasing number of helpless patients are being admitted, both physically and mentally handicapped, who need the most exacting nursing care for their survival and development.

The reduction of psychiatric beds forecast in the Hospital Plan at first discouraged some nurses, but anxiety about the future is now giving way to confidence that whatever changes come, registered mental and mental subnormality nurses will be needed in substantial numbers in posts with wider scope than formerly. Although fewer long stay patients are expected, more intensive use of fewer beds will call for much more nursing time. A few trained mental nurses have been engaged by local authorities as mental health officers, in which their knowledge of psychiatry and experience in managing disturbed people is a great asset.

The increasing numbers of people discharged from hospital or attending out patient clinics who still need nursing support has aroused a greater interest in psychiatry amongst nurses in the local authority service. The emphasis given to mental health and psychiatry in health visitors training enables them to be aware of the significance of tensions in a family, and they are then sometimes able to give support before overt symptoms of illness appear. Close co-operation with different branches of local authority staff,

general practitioners and hospital staff is strongly established in some places, and is being built up in various ways in different parts of the country; there are nevertheless areas in which this aspect needs attention. One local authority has four psychiatric social workers who do not undertake case work themselves, but guide the health visitors. Psychiatrists from hospitals or child guidance clinics in some areas hold seminars or case conferences with health visitors. Mental and mental subnormality hospitals have provided opportunities for practical experience varying from a day to six months, for health visitors and for supervisors. Similar visits and courses are requested by general hospital nurses, trained and in training, and many other professional and community groups.

### **Hospital Planning**

A number of Building Notes and equipment schedules which will be of value to nurse planners are nearing completion. The evaluation of newly-built departments must precede the revision of existing Building Notes; and the need for participation in this type of assessment by nurses is obvious. The effect of "deep planning" of wards on nursing organization, ward size and economic use of staff is being considered. The part of nurses in the processing of building schemes has greatly increased and considerable responsibility rests on the Regional Board Nursing Officers as well as the senior nurses of hospitals concerned.

The policy of modular co-ordination now advocated to speed the building programme demands detailed consideration of functional space requirements in all areas where patients are nursed, and their standardization to conform to preferred structural dimensions. This work calls for collaboration between Ministry and Board nursing officers and nurses in the clinical field. The need for a nurse planner at Board of Governor Hospitals has been recognized and such appointments have increased. The number of nurses who have had work-study training or appreciation and are now participating in their Board's planning teams is also increasing and will assist in the development of new working methods and techniques required for efficient use of the new hospital buildings.

The value to nursing staff of the various disposable items of equipment now available is being assessed from the point of view saving staff time and assisting in the control of cross-infection. For example the disposable bed-pan is in trial use in selected wards in several hospitals and an assessment of its value is in progress.

Consideration is being given to the use of flats as a future form of accommodation. These could be shared by several nurses of similar grades or by married staff, thus increasing flexibility of use. This proposal follows the same line of thought as that put forward for rented accommodation in Hospital Building Bulletin No. 2.

### **Health Visiting**

The centenary of health visiting in 1962 was celebrated in various parts of the country. Local health authorities and professional organizations held exhibitions, study days and conferences to show other nurses and the general public developments which have taken place and the work which health visitors are now doing in the community. It is perhaps appropriate to

review the major steps taken by the Ministry in helping these developments and to indicate future direction.

In 1862 when nearly a sixth of the children born in this country died before the age of one year, the Ladies Sanitary Reform Association of Manchester and Salford was formed, employing ladies to visit mothers and advise on the care of their children. Some 40 years later local authorities began to employ full-time staff for this work but it was not until the Acts of 1907 and 1915 were introduced that the full extent of problems involved with child-care could be identified.

Special professional training courses were organized by various bodies, but no generally recognized form of training existed for health visitors until 1919, when the Board of Education accepted responsibility for grant in aid. In 1925 the Ministry of Health became responsible for health visitor training and the Royal Sanitary Institute (now the Royal Society for the Promotion of Health) was made responsible to the Minister for the examination. The health visitor examination committee followed, the membership, examination and regulations of which were subject to approval by the Minister. It has been the practice since for schools for the training of health visitors to be visited at five to six yearly intervals by a medical and nursing officer of the Ministry. Regulations for admission to the examination were changed in 1938 when the Central Midwives Board altered their training scheme for midwives. They were again changed in 1961 when the midwives rules were amended to recognize a three months course of obstetric nursing within general nurse training. The regulations for admission to the health visitors examination were amended to allow the acceptance of this course of obstetric instruction for entry to the examination for health visitors.

The National Health Service Act for 1946 resulted in extending the scope of the health visiting service. As a result a revised syllabus was brought into operation in 1951 and subsequently schools lengthened their training from six months to an academic year. We have 23 of these schools and only two remain where the period of training is less than nine months.

The experimental schemes of integrated training combining health visiting with general nurse training, midwifery or home nursing, started in 1958 and 1959, are continuing to attract students of good educational standard.

The Health Visiting and Social Work (Training) Act 1962 came into operation on 1st October, 1962, and the Council under the chairmanship of Sir John Wolfenden was established. The Council takes responsibility for training at a time when the syllabus again needs revision, and when many of those concerned with training are eager to ensure a better standard of preparation for practical work than has been possible formerly.

In recent years health visitors have undertaken duties such as phenylketonuria testing, screening of children for deafness, and have assisted in research projects sponsored by national organizations and universities. Active immunization has become practicable against more of the infectious diseases and educating the public and making facilities for prophylaxis known is part of the health visitors task. Their work has always brought them into close contact with social workers and one important aspect of their responsibility is to recognize situations where there is a need for the services of

another worker, to call that worker, and to co-operate where both are concerned.

Schemes for the care of handicapped children are evolving in different ways throughout the country. With the expansion of the health and welfare services, many more individuals and agencies are concerned with particular problems in child welfare service. At case conference meetings the health visitors meet social workers and plan the future action to be taken with problem families including neglected and ill-treated children, unmarried or unsupported mothers and the homeless.

### Home Nursing

*Training Schemes.* Sixty-two training schemes for home nurses have been approved, 32 provide lecture courses and practical training whilst the remaining 30 provide practical training only and are linked to one of the lecture centres. The well-planned course enables the nurse to visit selected patients, to assess their requirements and to meet these, not only by bedside care but by making full use of all available resources. Self-care is encouraged both as a means of treatment and a return to independence. The strength of the home nursing service depends on the skill and relationship which individual nurses can establish with patients and others concerned with their care.

*Techniques.* The home nurse is not provided with pre-packed sterile equipment such as syringes, instruments, dressings and gloves in many areas but in some there is evidence that the traditional methods of boiling instruments and syringes in the patients' home are being replaced by these more efficient methods. Disposable syringes are provided by many local authorities and some are using manufacturer's pre-packed dressings. In some areas assistance is being given to local authorities by the central sterile supply departments of hospitals, as in Cumberland, Isle of Ely, Salford and Reading.

*Care of the Aged.* The Report (Geriatric Nursing Problems in Hospital) published in May, 1962 and sponsored by the National Corporation for the Care of Old People provided interesting and valuable information on the nursing needs and care of the aged, particularly as an increasing amount of time of home nurses is spent in the care of old people. Though the research was undertaken in hospital there are practical aspects which apply equally well to domiciliary care, such as the investigation into basic nursing care, clothing suitable for elderly patients, and the study of factors concerned with the production of pressure sores and their prevention.

### Child Health

*Day Nurseries.* Day nurseries continue to support mothers of young children who need help. In most areas there is a strict priority for admission and the trend seems to be an increased demand on behalf of children over two years of age and for admission on medical referral. Most authorities now give priority of admission to a small but constant proportion of children who are under-privileged, handicapped or maladjusted and who benefit by a nursery programme and contact with normal children.

Training for the National Nursery Nurses Certificate is popular and there is sustained demand for the available student places. The decrease in these

places, noticeable over the past few years, seems to have been arrested and in 1962 there was a satisfactory increase of 103 students taking the Board's examinations making a total of 1,745.

Two authorities are introducing new schemes of training in which students are to be based on the training college instead of the nursery. Approval has been given by the National Nursery Examination Board for this experiment. There is apparently an increasing number of girls willing to attend full-time courses of further education and it is satisfactory that nursery nursing is of such interest to them.

### **Health Education**

In recent years a great deal has been said and written in support of the rôle of public health nurses in health education. The annual reports of medical officers of health show a steady development in this field and testify that much of the work is carried out by health visitors, midwives and home nurses. Community education for mental health grows in importance but the basic concern with teaching of child nurture remains. The public health nurse meets all age groups and has the opportunity of reaching people who may not for one reason or another seek knowledge on their own volition. The domiciliary midwife is in a position to teach the importance of planned ante-natal care from early pregnancy. When her teaching is associated with that of maternity hospital midwives, particularly for women with first pregnancies, much anxiety and distress can be prevented. In spite of the mass media of magazines, radio and television people worry unnecessarily about simple facts of biology which can be easily explained.

The district nurse, like the domiciliary midwife, and increasingly the health visitor, works with the family doctor and is in a good position to educate the family in matters of health. Home treatment and nursing care need to be reinforced by education of the patient and the family.

### **Home Help Service**

The value of the home help service, particularly to the aged, cannot be overestimated and it often helps to keep old people in their own homes longer than might otherwise be possible. A choice of a home help organizer is of significant importance to the service for the efficiency of the home help service depends on the calibre and administrative ability of the organizer. Among the reasons for this is the fact that home helps are often part-time workers with families to care for and in consequence there are frequent staff changes. Recruitment is a problem in some areas, but not in all, and it is necessary to make full use of women available and recruit from hitherto untapped sources. Many authorities now provide or contribute to additional services such as laundry and "meals on wheels" and this is a considerable saving on home-help time.

## XI

### MENTAL HEALTH

#### *Components of a Community Service*

The scope of a community mental health service has been variously defined. In its broadest sense it refers to all the facilities needed to provide a comprehensive area mental health service. It has to know the characteristics of the communities it serves so that differences in need can be met by a corresponding variation in size and type of facility to be provided. Treatment and after-care services should be run in such a way, that patient groups in each particular component of such a service, in psychiatric in-patient units and all extramural services, aim at developing greater social competence. In a more limited sense community mental health services have to meet all medical and social needs of patients suffering from mental disorders who are able to live in the community. In a still narrower one it is concerned with the services provided by local health authorities. There is much scope for development in any one of the components. It is obviously not enough just to provide day centres, workshops, hostels, etc., for it is also essential to explore how these should be run so that they facilitate progress. New possibilities are likely to emerge as development proceeds. Energetic health education is required, not only in a general way, but also focussed specifically on some group such as health service personnel, employers, teachers and those who may take patients as lodgers.

The various components of a comprehensive mental health service, irrespective of whether they are part of the hospital or part of the local authority service, are interdependent. Any one part of it influences all others. A hospital service with a low level of activity, as far as in-patient treatment, rehabilitation and extramural work are concerned, has a small turnover. The detection, diagnosis and treatment of the incipient forms of illness is under such circumstances neglected. Medical follow-up services may then also be equally deficient. Such a situation is in some instances associated with a relatively small number of beds. Local authorities in the population area served by such a service may require more personnel for their mental health services than in another situation where treatment is available at an earlier stage and where patients are more adequately prepared, with the help of modern forms of treatment and rehabilitation, to resume a normal life.

Some psychiatric hospitals have already reached a level of activity per year, where for every 100,000 of the population more than 400 new out-patients are seen and more than 400 patients are admitted for predominantly short term treatment. Mapperley hospital, for instance, also has about 50 places available for day patients from the same population. In this case the level of activity of the mental health service of the local authority may in fact be lower than in the case of the smaller activity hospital services. There are also instances where both the local authority and the

hospital service are little developed. Obviously there exist various degrees of development in-between. This alone illustrates the great importance of co-ordination and therefore the need for adequate liaison between all the various agencies concerned with the planning and running of mental health services. Some of the measures that can be taken are outlined in HM (59)46. In many areas, particularly where consultants take responsibility for patients from a particular district, they have become advisers of the local health authority and sometimes have been co-opted to the health committee or mental health sub-committee. Similarly medical officers of health are serving increasingly on Hospital Management Committees. Some regions also, organize liaison meetings of consultants and medical officers of health at regular intervals to discuss and take action about various practical day to day problems. The fact that patients may require the service of different elements in the hospital or local authority service, concurrently is a powerful argument against rigid division of responsibility.

A decision on a patient's suitability for community care will have to depend on the extent to which his medical and social needs can be met by the facilities available.

The use of the hospital service for in-patients, out-patients and day patients is, however, not solely occasioned by purely medical needs. Referrals frequently arise from social factors, like the death of a relative with whom the patient lived or some other change in the situation at home. This occurs with all forms of mental disorder since home care of these patients is always a delicate balance of medical and social factors.

A variety of facilities are required to avoid hospitalization in appropriate circumstances. The need for hospital admission is reduced by the development of adequate domiciliary and after-care services.

#### *(1) Domiciliary medical, nursing and social services*

This has already been demonstrated by the Worthing and Chichester, Nottingham and a number of other services (Carse, Panton and Watt, 1958; Grad and Sainsbury, 1962 & 1963; Macmillan, 1956). With the increasing participation of local authorities this may become even more effective. Quite a number of the social causes for admission can be removed or relieved by providing advice and support in the home. The necessary medical and also physical treatment can, in suitable cases, be given at home with the help of domiciliary nursing teams. This has already been developed at Croydon in conjunction with Warlingham Park Hospital (May, Sheldon and MacKeith, 1962; May and Moore, 1963). Where such a service exists more patients can be treated in the community without creating undue stress. Such work takes place in close co-operation with the general practitioner who is thus brought into effective partnership with the psychiatrist. Some hospitals have arranged to meet general practitioners regularly in groups to discuss common problems and to seek practicable solutions apart from considering individual patients under their care. In many instances further progress has also been made in removing technical obstacles in the way of better communications with the general practitioner by improving the telephone system of psychiatric hospitals and the methods of regular reporting.

## *(2) After-care services*

In a hospital where patients are adequately treated and rehabilitated to their maximum potential, the degree of clinical improvement achieved will be the decisive factor in determining whether community care should be advised. In a proportion of patients resettlement will be completed by a return to open or sheltered employment with complete economic independence. The majority of those discharged will, however, require one or more of the various components of a mental health service concurrently irrespective of whether these are part of the hospital or local authority service.

### *(a) Hospital out-patient services*

Apart from diagnosis and treatment, follow-up clinics gain in importance with an expansion of community care. Some boards plan for at least one out-patient session for every 20,000 of the population. There are some mentally ill persons whose recovery is complete and who may need to be seen on only one or two occasions and no follow-up by out-patient or social services at home may be required. Others not needing specialist services return to their general practitioners. Such facilities for the subnormal are little developed as yet.

### *(b) Social services*

The more hospital and local authority social service departments become merged, the easier it will be to make arrangements flexible. Both the mentally ill and the subnormal will make considerable demands on social services. Their needs are not yet adequately met. Frequently a new pattern of case work will be needed. In many cases families need regular counselling. With joint participation of psychiatrist and psychiatric social worker, attention might be given to whole families or patients in groups, apart from counselling individual patients.

### *(c) Occupation*

Very handicapped patients, who are unfit for open or sheltered employment can, if the social situation is favourable, be looked after at home, but they need occupation. This is well recognized for the subnormal for whom training centres are being increasingly provided. The requirements for the handicapped mentally ill are not yet sufficiently known. Some local authorities, like Nottingham and Middlesex, are however already planning to provide workshops on the basis of 30-50 places per 100,000 population. The different degree of handicap in the mentally ill which may remain after intensive treatment makes it necessary to provide a considerable variety of work. This is more easily achieved if at least 100 patients are occupied in such a centre. Various forms of industrial work in the nature of simple cardbox folding, finishing plastic products like various types of bags, cutlery, cocktail sticks or other forms of assembly or packing jobs are often found useful. It is necessary for the patient's work to be continuously assessed so that objective records of work progress are available. Opportunities must exist to move patients on to more complex

tasks or to situations where there is less supervision. This is highly developed in the industrial unit at Cheadle Royal or the Bristol Industrial Therapy Organization (Wadsworth, Wells and Scott, 1962).

*(d) Sheltered employment*

This will be required for both mentally ill and subnormal. Some voluntary organizations have pioneered in such development like the ex-service welfare organization (Thermega Ltd.), a section of the Bristol I.T.O., and Cheadle Royal. Similar development is now occurring in a number of places like Wirral, Epsom and Southall and no doubt many more will follow. In some instances local authorities are planning joint services together with hospital authorities. Suitable psychiatric patients are also employed by Remploi. The size of this need for the mentally ill may be great and estimates by hospital authorities vary from 4-10 per cent. of the in-patient population for the mentally ill in England and Wales.

*(e) Residential accommodation*

Such facilities are needed whenever a home with relatives is not available or not suitable and when living in lodgings is not advisable because of the isolation this may imply. A minimal degree of supervision is needed which a suitably run hostel can supply. Such hostel accommodation is required for various periods of stay and different kinds of patients. In some cases where a mentally ill patient has been discharged into a family where tension and hostility have developed, a short stay in a hostel may prevent further breakdown, without any additional treatment being required. Other patients may need prolonged periods of residence in such sheltered conditions. In the latter case, priority should go to those who are potentially self-supporting either in open or in sheltered employment. A proportion of these may eventually settle in ordinary lodgings thus freeing places for new cases. Similar considerations apply to both the mentally ill and subnormal who are potentially employable. Patients without relatives who are not likely to become eligible for open or sheltered employment, and attend adult training or occupation centres for the mentally ill below the sheltered workshop level may have to continue in hostel accommodation for an indefinite period. Such facilities will have to maintain close links with psychiatrists and other staff interested in rehabilitation, to clarify the purpose of a hostel and to ensure that an agreed method is used for admission and for meeting additional medical and social needs of patients.

*(f) Social clubs*

After school or working hours, training or day centres are becoming increasingly used for social club activities, which offer opportunities for social support and enable many patients to lead fuller lives than would otherwise be possible. Such centres must seek to move patients on to ordinary clubs in the community whenever possible.

**Organizational changes required in existing Mental Hospitals**

The performance of existing psychiatric hospitals is being improved in a variety of ways. Some of these are concerned with the development of activities, i.e., intensive treatment, work rehabilitation, socialization and others with patterns of organization likely to benefit the patient.

(a) *Patterns of Organization*

It is becoming more widely accepted that a consultant psychiatrist should be concerned with a cross section of all types of psychiatric patients; some will require intensive treatment, others rehabilitation, etc. If a patient is seen at out-patients he should be able to remain under the same psychiatrist's care whether as an in-patient in the psychiatric unit of the general or mental hospital, or later, when specialist advice is again needed, after discharge.

At present for mental illness, on average one consultant psychiatrist is available for about 100,000 of the population. With the continued development of more comprehensive mental health services, a larger number will be needed; indeed the specialty has been growing and is likely to continue to grow as fast as doctors with the vocation and capacity to become consultant psychiatrists become available. In the past the medical work of psychiatric hospitals was not organized to facilitate continuity of clinical care. This was in part due to deficiencies in medical staffing. The senior medical staff tended to be in charge of either the male or female side or only a section of it. The recognition of the Responsible Medical Officer and an increase in the number of medical staff has stimulated the setting up of independent teams within the mental hospital complex. The degree of activity varies greatly between different mental hospitals and there is some relationship between this, the turn-over, and the number of beds needed. Depending on local circumstances, like the location of the hospital, its size, etc., certain different patterns of organization have been developed. This has also led to a division of larger psychiatric hospitals into independent units of more manageable size. For example: One such attempt at re-organization was described for the Towers Hospital (Kidd, 1961; Milnar, Kumar and Bakker, 1963; Early 1963) at Leicester, which is a hospital serving an urban community of 300,000 and has approximately 850 beds. Three teams were formed. Each clinical team has its own wards for male and female admissions and longer-stay patients. Each medical team consists of a consultant and two or three junior doctors. Attached to each are social workers or mental welfare officers. Teams admit alternately for one week, but general practitioners can also refer to the consultant of their choice, as each may have special interests. In this way some differences in the range of clinical work of each team eventually emerge. Each team has patients in the same closed wards and also in some long-stay geriatric ones. All receive patients from the whole of the City as it did not seem feasible to allocate a separate proportion of the city's population to each. This type of organization seems suitable for a hospital in close proximity to not too large a population area under one local health authority and offers a choice of consultants, each of whom has his own outpatient and inpatient facilities.

A different system was adopted by the staff of Deva Hospital. Four teams were formed for this hospital with 1,600 beds. Each team consists of five doctors; two consultants, one senior registrar, one junior hospital medical officer and has its own wards containing a cross section of all kinds of patients, except the two admission wards which are shared by all the teams on a bed basis. Each team also has additional special responsibilities.

Team One : E.E.G. Department. Medical Administration.

Team Two : Security Ward.

Team Three : Mothers and babies. Industrial Therapy and Adolescent Unit.

Team Four : Day Hospital and Addiction Centre.

Because of the geographical situation of outpatient clinics, no attempt could be made to attach the teams to geographical areas. One of the admission units is for both sexes with both female and male nursing staff on duty together. Individual teams have their own discussions and case conferences and all doctors meet once a week.

At Winterton Hospital at Stockton on Tees (2,033 beds) yet another system has been adopted. This hospital serves the greater part of the County of Durham, a population of about 850,000 people. It has been divided into three geographical sectors. These may, it is hoped, be increased to six as more consultants are appointed. The advantages seen are that each consultant has his own patients on his own wards and the setting up of three admission units has spread acute work more widely over the hospital and there is a healthy rivalry between the three sectors to produce better results.

The population area served by Claybury Hospital has also been divided into approximately equal parts for each of the four firms established there. The hospital has a total of 2,176 beds. Great stress is laid on the need for only one consultant to be in charge of a ward or unit, if it is to be run on maximum therapeutic lines (Martin, 1962). The admission of patients is based on mixed units with mixed staffs to which patients both male and female can be admitted from the area served by a particular team. Each unit also has its psychiatric social worker. Considerable structural alterations were needed to achieve this.

#### *(b) Intensive treatment*

Most psychiatric hospitals have special units where this is carried out and where patients stay for only short periods. The establishment of such units in general hospitals will make them more accessible to the community they serve. Great care will be required to ensure that they remain an integral part of the existing services provided by psychiatric hospitals so that continuity of clinical care by the same team is guaranteed.

In a number of hospitals like the Cassel or Banstead, special units have been established where psychiatrically ill mothers can be admitted with their children up to the age of two. This requires appropriate staff to take care of children while their mothers are being treated. Dining and adequately equipped day rooms are also needed so that the lives of these children may be as normal as possible during the time their mothers are in hospital. Hospital admission of psychiatrically ill mothers with their children can often be prevented or discharge from hospital accelerated if similar facilities are provided on a day basis, and this is an area where health visitors play an important part. There are many examples of successfully run day units of this kind attached to psychiatric units in general hospitals in the Manchester region and in a number of others.

### *(c) Work rehabilitation and socialization*

After a course of intensive treatment a considerable number of patients retain some symptoms of their illness. Because of these and in addition, at least in a proportion, also because of the characteristics of their pre-morbid personality, they do not become independent or economically self-supporting without further help.

The severity of their disability also prevents many from qualifying for the rehabilitation, training and resettlement facilities of the Ministry of Labour. Such patients will need intensive rehabilitation initially in hospital and later by attending as day or outpatients. Psychiatric units in general hospitals therefore have two distinct functions, intensive treatment and initial rehabilitation.

A large comprehensive psychiatric general hospital unit of say, 60 beds for intensive treatment and about 100 for initial rehabilitation, serving a population of 200,000, will be able to limit the need for beds more effectively, if it can rely on alternative services like outpatient clinics, day patient facilities, a social service, hostels and workshops in the community. Units of this kind in the Manchester region exemplify this.

If the general hospital cannot provide for intensive rehabilitation, existing mental hospitals will continue to do so, and particularly where it is necessary for periods of over six months. Though much has been done to improve facilities and methods of rehabilitation in existing mental hospitals much more is needed to ensure full, purposeful and adequately rewarded employment for all patients. The measures needed are partly organizational, partly the provision of additional workshop space and partly the recruitment and training of suitable staff. Some of these rehabilitation facilities can be shared with the physically disabled.

(1) *An employment office* has been established in some hospitals. Every admission, transfer to another ward, or discharge is notified to such an office which keeps a personnel board or card index of each individual patient in the hospital, categorized under the different types of work provided; each card gives the duration of stay and whether a patient is under or over 60. A register of the unemployed is under continuous review. This office knows where everyone works on a particular day and is notified of all vacancies in occupational and utility departments of the hospital. The work records of individual patients are also kept along with records of all payments received for work, from National Health Insurance, pensions and other sources.

Such an office makes it possible to see the daily position at a glance and is of particular importance in a large hospital.

(2) *Industrial manager.* Generally psychiatric hospitals cannot provide realistic occupations for the majority of their patients in their own utility departments, though these provide many useful work opportunities. In a considerable proportion of the patients, disabilities are too severe to make it possible for them to work there. With the introduction of simple industrial work many more patients have become usefully occupied with beneficial results. As soon as such work expands and 300 to 400 or more patients are occupied on industrial work, new organizational measures are needed.

It then becomes necessary to employ someone whole-time, preferably with industrial experience, to find suitable work and to organize stores and an adequate record system. Different methods are being tried. In some hospitals this is done successfully by senior nurses or occupational therapists, in others by psychologists. Some have engaged people with industrial experience to do this particular work as recommended in H.M.(58)57.

Many features of hospital life tend to breed dependence and the diminution of capacity by disuse. This applies to work skills and others alike. Recognition of this danger has stimulated many hospitals to look at themselves critically and to develop highly organized methods of rehabilitation and a system of communication which tries to involve both staff and patients more actively in the daily events of hospital life and in the improvement of treatment and rehabilitation programmes. An increase in self-reliance and in the capacity for independent living is the obvious aim. At regular meetings all possible means to achieve these aims are explored and discussed. Particular attention has to be given to a regular review of each individual patient's history, clinical condition and progress, especially in longer stay groups, so that suitable alternative placements in work or in a ward with less supervision, are arranged at the right time. The urge to return the patient to his home has to be kept alive in both patients and staff. When needed attempts may have to be made to influence family attitudes with the help of group meetings while the patient is in hospital.

#### References

- Carse, J., Panton, N. E. and Watt, A., 1958. *Lancet*, i, 39.  
 Early, D. F., 1963. *Lancet*, i, 435.  
 Grad, J. C. and Sainsbury, P., 1962. *An evaluation of community care*. In: Proceedings of the 3rd World Congress of Psychiatry, Montreal, 1961. Toronto, University of Toronto Press, vol. 1, p. 228.  
 Grad, J. C. and Sainsbury, P., 1963. *Lancet*, i, 544.  
 Kidd, H. B., 1961. *Lancet*, ii, 703.  
 Macmillan, D., 1956. *Lancet*, ii, 1094.  
 Martin, D. V., 1962. *Adventure in psychiatry: social change in a mental hospital*. Oxford, Cassirer.  
 May, A. R. and Moore, S., 1963. *Lancet*, i, 213.  
 May, A. R., Sheldon, A. P. and MacKeith, S. A., 1962. *Lancet*, ii, 1319.  
 Milner, G., Kumar, K. and Bakker, A. H., 1963. *Brit. med. J.*, 1963, i, 389.  
 Wadsworth, W. V., Wells, B. W. P. and Scott, R. F., 1962. *Lancet*, ii, 1375.

## XII

### SOCIAL WELFARE

It is becoming a truism that without more staff with training in social work, local authorities are seriously handicapped in carrying out to the full their growing responsibilities for community care. It is therefore fitting to open this chapter with a reference to developments in training and in particular to the setting up of the Council for Training in Social Work with Sir John Wolfenden as Chairman, under the Health Visiting and Social Work (Training) Act, 1962. The Council held its inaugural meeting in October, and at once embarked on a considerable programme of study of the problems in this field. These included the establishment of standards for general training in social work, the approval of courses which would lead to a nationally reorganized qualification, and the nature of this qualification. They had further to consider patterns of training other than a full-time two year course. There is now substantial hope for the early extension of training facilities in social work, with improved public understanding of its importance, and of the standards it demands, as well as increased recruitment.

Candidates for training in the second intake of the pioneer courses in September, 1962, showed that people of excellent calibre were again coming forward. Whereas in 1961 all but four students came from existing employment with local authorities, in 1962 a higher proportion were new recruits. The Courses were, however, still fortunate in having many mature students with some years of experience in Local Authority Departments, a pattern which seems likely to persist for some years to come. The Courses opened at new centres in Bristol, Leeds, Manchester and Coventry had similar experience with regard to recruitment. The Council appointed a distinguished panel of assessors (= external examiners) for the first Courses which will be completed in the Summer of 1963.

Local authorities, like hospitals, have at present no alternative to recruiting a proportion of new staff from those who have not yet had social work training. Short Introductory Courses of various kinds are increasingly coming into being. These can at least give the newcomer some background on the policy and practice of a particular service and bridge the gap until a recognized course can be taken. Carefully thought out in-service courses of this kind can be invaluable and it is to be expected that before long they will be devised in such a way as to lead naturally into a course carrying a national qualification. This more stream-lined view of training gives emphasis to the importance of wise selection of new entrants.

*The Mental Health Services.* (See Chapter XI)

One of the greatest restrictions on progress in planning a comprehensive service is undoubtedly shortage of social work staff, and in particular of trained staff. Trained psychiatric social workers have traditionally sought employment in the hospital and child guidance services and here they remain

in very short supply though the numbers have risen during the year. There are, however, signs of increased interest in the local authority mental health services. According to the Annual Report of the Association of Psychiatric Social Workers, qualified psychiatric social workers in local health authority employment have risen from 65 to 86 in 1962. There have been some changes in the planning of the mental health training courses in the Universities to help the students' understanding of a local authority work setting, and the needs of the mentally disordered and their families where the sick person is being sustained at home. There has been considerable publicity of the possible effects on other members of the family and on the stability of the family itself where the sick person is returned to his home or remains in his home instead of having prolonged hospital treatment. Whilst it is important not to put too much strain on the family, the easier movement between hospital and home resulting from informal admissions to hospital helps the eventual recovery of many patients. The limited number of psychiatric social workers available as yet in hospitals and local authority mental health services is a severe drawback to the development of effective liaison between the two. The anticipated supply of social workers with a general training in the new courses described earlier, will gradually help to ease the situation, but in the meantime means have to be sought to make the best use of those that are available. Methods of integration between the services are being tried out in many areas, in an attempt to make the most economical use of all the staff available, both trained and untrained. In some areas, appointments of social workers jointly to hospital and local authority have been made. More commonly, social workers employed by either service are taking an increasing part in the work of the other. Local authority mental welfare officers are in many areas being increasingly associated with the work of the hospitals, either to keep in touch with patients already known to them, to make themselves known to patients who will require their help on leaving, or in some instances to take a more direct part in the whole therapeutic programme. Conversely, hospital social workers are making themselves available to local authority mental health department staffs to join in case conferences, and discussions on policy and matters of local concern in the area.

In addition to the problems brought about by the overall shortage of social workers, there are those resulting from the ever increasing demand for their services in the new facilities which are gradually being developed. These include social clubs, day centres and day hospitals, all of which need social work support if those making use of them are to receive the full benefit. The continued progress in the development of facilities for the care of the mentally subnormal in training centres, special units for the most severely subnormal with additional handicaps, hostels and social centres, needs to be supplemented by social workers with time to give attention to the needs of individuals and their families. The maintenance of links between home, hostel, and training centre is of vital importance to this group.

In some parts of the country, efforts towards closer integration of the hospital and local authority services are seen in the establishment of mental health centres. One of these has been opened in Plymouth. It is financed by the Nuffield Provincial Hospitals Trust and provides accommodation

for the mental health services of the local authority including child guidance, as well as a day hospital. There will also be rooms for therapeutic social clubs, and treatment rooms for use by hospital medical staff. Management will be by a joint committee of the hospital and local health authority. Other centres provide facilities for treatment by hospital doctors on premises used by mental welfare officers. Another pattern is the integration of the local authority services under one roof, including child guidance and in some cases providing psychiatric social work aid to other services, for example, to the E.S.N. schools in one area, and to the maternity and child welfare services in others. This kind of arrangement may provide an excellent opportunity to include the general practitioners of the area, both as users of the facilities offered, and to participate in discussions and case conferences.

### *The Physically Handicapped*

Much of what has been said about continuity of social work with the mentally disordered applies also to work with the physically handicapped. Personal and family problems arising from physical disability can be as complex as those in the mental health field and individual reactions as varied. Social workers concerned with physical disability whether in hospital or local authority setting have thus a comparable obligation to work out ways in which their respective contributions can most effectively be made. Some disabled people, for instance, may require considerable help of a kind which can best be given while still a hospital inpatient. Others may have greater need at home where they are face to face with the reality of living with a permanent disability. This may often be the case where the disability is caused by sudden illness or accident or by a new phase of chronic or progressive disease. Again, continuing hospital treatment as an outpatient may require closely integrated co-operation over a period. Hospital almoners are usually responsible for liaison with local authorities on the social needs of individual patients and this liaison becomes of increasing importance as the local authority welfare services develop.

Where progress has been slow, liaison of the kind described is often lacking, and the shortage of trained workers able to provide a social work service has been a further limitation. Here again the expansion of training facilities for social work provides hope of more trained staff becoming available. It must be recognized however that many hospitals are still without a medical social work service, and it will take time for local authorities to build up and recruit the staff they need. Ways of strengthening existing links between hospital and community social workers and of promoting new ones need to be explored. As hospital almoners and local authority welfare officers learn more about the problems which confront their opposite numbers and appreciate what the other has to offer a handicapped person, so co-operation and thus the service to the individual is improved. The easy contact and interchange now developing in some well integrated mental health services is equally appropriate in services for the physically handicapped, and perhaps especially significant in relation to the blind and partially sighted. A few local authorities provide special opportunities for parents of blind and partially sighted children

to meet together and to discuss problems with each other and with appropriate officers of health, welfare and education departments. Such meetings have been greatly appreciated by all concerned and could develop further to include hospital consultants and almoners as occasion offered. Similar patterns of co-operation are desirable in respect of the deaf, and have developed in one area where hospital, local authority health, welfare and education departments, voluntary organization and parents' association are linked through representation on the voluntary organization's social centre committee of which the consultant in otology is the chairman. The link with the hospital service is close and co-operation between it and local education authorities is also well-developed. Social problems of special difficulty can be referred to the almoner. These various patterns of co-operation provide encouraging evidence of development in service to patients.

In other ways the domiciliary services for the handicapped have continued to expand and voluntary organizations have played their important part, particularly in helping to run clubs and holiday schemes and in arranging transport for various purposes. Another example is work for the deaf blind. One or two authorities are known to be planning jointly with a voluntary organization for a special guide helper scheme, like the one previously pioneered in Bristol, which enables a small number of deaf blind people to go out with voluntary workers who have learned how to communicate with them.

In the social centres some authorities are tackling problems of providing satisfying and rewarding occupation with imagination and resource, but many real difficulties are involved. The value of working in a team can be considerable and industrial work even with limited financial reward can often give a sense of fulfilment. It leaves the person concerned with the feeling that in however small a way he is making his contribution to the industrial life of the country and to the making of goods which are really needed and not contrived to keep him busy.

Outside the hospital service voluntary organizations have done pioneer work in the past for the very severely handicapped and for those who for social rather than medical reasons require some form of communal care in the community. Increasingly local authorities are beginning to plan accommodation of this kind. Experience in providing for the elderly, including more recently those who are mentally disordered, has clearly shown the advantages of providing residential homes within reach of home, family and community ties, and these considerations apply equally to handicapped people. Residential care for younger physically handicapped people does however present other and different problems. Younger people feel an even greater need to manage their own affairs as far as possible, and freedom for initiative and some degree of personal privacy are essential if they are to come to terms with their disability. Too sheltered an environment and too highly equipped accommodation can mitigate against independence. It is desirable for remunerative occupation however simple to be part of their lives, and for it to foster feelings of dignity and responsibility.

These problems need further study if the new accommodation is to meet the needs of disabled people who cannot satisfactorily live at home or in

special or adapted housing. Residential homes of the size and design normally provided for the elderly should not be accepted too readily as equally suitable for the handicapped, and experiment is needed here as elsewhere. Small homely units indistinguishable from other houses in the community, or development nearer to a foster home type of care for a group of adolescents may prove more appropriate.

### *The Elderly*

One of the significant developments in this field is the now general recognition by those concerned with social work and welfare services for the elderly of the importance of more precise study of the nature of the needs to be met. This recognition is not, of course, new and no doubt derives in part from distinguished studies in the medical field, but it has been gaining in emphasis during the last few years and there is now hardly an aspect of the services for the care of the elderly which is not the subject of survey or investigation. This is greatly to be welcomed at a time when the advantages of care in the community are widely accepted, and when both hospital and local authorities are engaged in reviewing and drawing up plans for the development of many important services affecting elderly people during the next decade.

Reference has been made earlier in this chapter to the various ways in which links between hospital and local authority services are being built up in other contexts. Similar patterns are to be found in relation to the elderly. In one county, for example, where geriatrician and hospital social worker are appointed jointly by R.H.B. and local authority, regular case conferences with the other domiciliary workers have developed, and the administrative arrangements provide for an assessment of the social situation by area almoner or welfare officer to accompany a selection of the applications made by general practitioners for hospital admission. These help in determining suitable action and priority, and it is of much interest that the various procedures worked out in this county have resulted in a hospital waiting list which is low in comparison with other areas, and in easy admission arrangements between hospital and residential care which are not based on exchange.

The regular meetings between hospital and local authority officers which take place in many areas seem an indispensable element in co-operation. In one area general practitioners are also invited to the bi-monthly meeting to which is allied weekly discussions on individual cases at social worker level. In another the county welfare officer holds joint meetings of hospital-based almoners and his own visiting officers, and a few authorities have recently made appointments of social workers who are expected to carry out their duties in close liaison with the hospital geriatric consultant.

Projects for day care in centres are growing. Some of the earliest of these were pioneered by voluntary organizations and now a few are planned, or being planned, by local authorities in association with a residential home. Informal arrangements on a small scale are also being made for an elderly person to spend two or more days a week in residence in a home partly for his own sake and partly for the relief of supporting relatives. Such arrangements are usually planned initially on an experimental basis as, for example, the pilot scheme in one rural county for

bringing some homebound handicapped recipients of the meals on wheels service to a luncheon club held one day a week in a purpose built home for the elderly. Transport is provided by voluntary service and the meal is served and washed up by voluntary workers. The scheme, which has proved very successful, is to be extended by the authority to other homes. The more active residents in suitable homes might often be encouraged to make comparable use of a voluntary organization's day centre or luncheon club and in this way strengthen or perhaps make fresh links with members of their own age group in the community.

The National Assistance Act, 1948 (Amendment) Act, 1962, has stimulated voluntary effort in other directions and has encouraged local welfare authorities themselves to provide more services or increased support of voluntary effort, primarily in an expansion of meals on wheels. More work centres for the elderly have been set up, mainly by voluntary organizations, and there is no doubt of their success.

The provision of residential accommodation to meet present demands, and the care in particular of the very infirm, remain among the most pressing problems confronting local welfare authorities. The satisfactory staffing of an increasing number of homes continues to present many difficulties.

The trend towards a high proportion of single rooms in new buildings and exclusion of rooms for more than two people is now very evident and there has been a notable swing in policy among some authorities away from the larger type of home of 50 or more beds towards the smaller more homely units originally envisaged. A few authorities, including some in rural areas, are experimenting with homes for 10 or 12 residents and interest in this kind of provision is growing. The desire for 60 and more bedded homes is as a rule now only found among authorities in heavily built up areas where sites are hard to find or where the belief is still held that it is easier to care for very infirm people in larger units. The principle of providing whatever care is needed (short of hospital treatment) wherever an elderly person may already be resident has still to gain full acceptance.

Much thought is currently being given to the needs of blind people who are also elderly. In some new homes arrangements are made for both blind and sighted residents. The plans take the form of separate but linked accommodation, with some common rooms, for example dining and sitting rooms. This enables blind and sighted residents to live in suitably planned physical surroundings, with the advantage of a wider choice of companionship than from one group alone.

From time to time the view is still expressed that a proportion of residents largely in ex-Public Assistance homes will be unable, after many years of institutional life, to adjust to life in a small home or to appreciate a more personal and individual form of care, but experience has shown that the response of even institutionalized old people with low standards of personal care and behaviour to the privacy of a room of their own, and to a more homely setting with the encouragement given by suitable staff is most rewarding.

Throughout this chapter there have been references to the part played by the staff of various types of residential establishment. There is no doubt about the importance of the work they do or of the heavy burden of responsibility which many of them carry: nor of the influence which staff, including assistant staff, have on the well-being of individual residents. In the whole field of residential work recruitment is difficult, training is hard to come by and general recognition of its importance has been tardy. It is therefore satisfactory to be able to end by recording the setting up, through the initiative of the National Council of Social Service and the generosity of the Gulbenkian Trust, a Committee to direct a research study of residential work over a wide field, including among others work for the old, the handicapped, children and the mentally disordered. The aim is to discover the facts and to make recommendations for training and recruitment, and the fruit of their deliberations will be eagerly awaited.

# XIII

## HEALTH IN WALES

The Report on Developments and Government Action in Wales and Monmouthshire 1962 (Cmd. 1951) indicated noteworthy developments in health matters. Statistics about the work in the hospital, the executive council and the local health authority services and the gross expenditure on the National Health Service from 1951 to 1962, together with statistics relating to infectious diseases, including tuberculosis are contained in the Digest of Welsh Statistics, No. 9, 1962.

### Maternity and Child Welfare

#### *Vital Statistics*

The relevant statistics are shown in Appendix D to this Report.

The perinatal mortality rate of 36.1 per thousand total births shows a decrease over the rate of 36.7 for 1961. Nineteen mothers in Wales died in childbirth a maternal mortality rate of 0.41 per thousand births. The rate for 1961 was 0.35 when there were 16 deaths.

#### *Infant Mortality*

In the past the infant mortality rate has frequently been used as an index not only of maternal and child care but also of the social standards of the community. In reviewing the decline in rates over the last 25 years, it is noticeable from the figures quoted in Table 1 that the more rural communities in the Principality have reached a lower level than the industrial belt of South Wales. The percentage improvement over the same period indicates that strenuous efforts have been made to reduce infant wastage.

**TABLE 1**

*Infant Mortality Rates—Mean rates for years 1936–40 and 1957–61*

| Authority              | Mean for years<br>1936–1940<br>(a) | Mean for years<br>1957–1961<br>(b) | (b) as percentage<br>of (a) |
|------------------------|------------------------------------|------------------------------------|-----------------------------|
| Anglesey C.C. ... ..   | 69.0                               | 19.4                               | 28.1                        |
| Brecon C.C. ... ..     | 57.4                               | 23.2                               | 40.4                        |
| Caernarvon C.C. ... .. | 62.8                               | 24.4                               | 38.9                        |
| Cardigan C.C. ... ..   | 57.0                               | 23.0                               | 40.4                        |
| Cardiff C.C. ... ..    | 61.4                               | 27.0                               | 44.0                        |
| Denbigh C.C. ... ..    | 65.0                               | 22.2                               | 34.2                        |
| Flint C.C. ... ..      | 59.0                               | 23.8                               | 40.3                        |
| Glamorgan C.C. ... ..  | 62.6                               | 28.0                               | 44.7                        |
| Merioneth C.C. ... ..  | 65.0                               | 20.2                               | 31.1                        |
| Monmouth ... ..        | 62.2                               | 27.4                               | 44.1                        |
| Montgomery C.C. ... .. | 51.8                               | 18.0                               | 34.7                        |
| Pembroke C.C. ... ..   | 51.6                               | 26.6                               | 51.6                        |
| Radnor C.C. ... ..     | 49.8                               | 21.6                               | 43.4                        |
| Cardiff C.B.C. ... ..  | 56.8                               | 24.0                               | 42.3                        |
| Merthyr C.B.C. ... ..  | 76.0                               | 33.8                               | 44.5                        |
| Newport C.B.C. ... ..  | 64.4                               | 31.4                               | 48.8                        |
| Swansea C.B.C. ... ..  | 56.4                               | 24.8                               | 44.0                        |
| Wales ... ..           | 61.4                               | 26.0                               | 42.3                        |

Due to the development in the method of treatment of infections and the influence of immunisation programmes, it is felt that the infant mortality rate can no longer be regarded as a reliable indication of maternal and child care. The peri-natal mortality rate has now become a better index.

The Welsh perinatal rate has persistently remained higher than its English equivalent. The current survey of the maternity services within the Principality carried out by the Welsh Board of Health in association with the obstetric and paediatric departments of the Welsh National School of Medicine is an attempt to reduce this rate. A medical representative of the Welsh Board of Health visits local health authority, local medical committee and hospital management committee areas and discussions take place regarding their individual services and the liaison existing between the services. Domiciliary midwives discuss their responsibility for the patient confined at home, while the general practitioners interviewed underline the problems associated with securing hospital beds, and the co-operation of patients; jointly they provide the picture of the ante-natal and delivery care of the mother confined at home. Interviews with local health authority medical officers who conduct ante-natal clinics reveal their problems associated with shared responsibility of the cases. Records of general practitioner units and consultant units indicate their selection standards and their provisions for ante-natal care; while visits to the wards and interviews with patients give a picture of the day to day hospital services provided for the mother. Finally, analyses of the individual peri-natal deaths can show at least some of the avoidable factors which help to keep the peri-natal rate high.

The survey must be regarded as a fairly long term process but it is hoped that recommendations, as they emerge, will be implemented and followed by a reduction in the peri-natal mortality rate.

In 1962 there were 1,019 stillbirths and 658 infants who died in the first week of life compared with only 492 infants who survived the first seven days of life but died before they were twelve months old. The reduction of this hard core of infant mortality is being attacked clinically by various research projects within Wales which are directed towards solving some of the major problems associated with survival. These include the neuropathology of the central nervous system in anoxia of the new born: investigation of changes in the respiratory distress syndrome of the new born: investigation of placental function: and investigation into factors involved in the expansion of the foetal lung.

The current investigation of hereditary and environmental factors in the aetiology of major central nervous system malformations in South Wales mining valleys and in the Vale of Glamorgan opens up the narrower clinical field, and offers a valuable opportunity for local health authorities. The work of investigation and identification is as important as that of treatment of the congenital abnormalities and efforts are being made to compile risk registers from which these abnormalities should become apparent. At the same time, arrangements are being made within the highly populated areas of Glamorgan and Monmouthshire to set up a regional register for congenital abnormalities as a nucleus of information to stimulate further field studies.

## Dental Health Services

The general dental services, under Part IV of the Act, continue to function satisfactorily but under obvious pressure because of the overall shortage of dentists. The ratio of population to dentists is particularly unfavourable in Wales, the average figure for the Principality being one dentist to 6,400 population, a ratio which is only better than one other region, the North Midland area of England. It is notable also that in Wales singlehanded practices are in the majority, there being comparatively few partnerships or practices with assistants. Of these singlehanded practices, also by far the larger number are conducted by practitioners in the older age groups, 50-55 and upwards, and this is reflected in the general pattern of the treatment afforded. Conservative treatment of the teeth is showing a small though steady increase from year to year but the extraction of teeth and the provision of dentures still forms a very large part of the treatment carried out, and emergency treatments under the modified Form E.C.17, where the treatment consists almost entirely of the extraction of one or two teeth only, with other teeth remaining untreated, still form a high proportion of the estimates submitted to the Dental Estimates Board for payment compared with the greatly reduced proportion in the country as a whole.

Dental treatment for the priority classes—expectant and nursing mothers and children under school age—is provided by four County Borough authorities and twelve County Councils as part of their local health services, and during 1962 over 3,000 mothers and over 3,000 young children received treatment from this source. Extractions continue to form the major part of the treatment for both mothers and young children.

A large number of mothers prefer to obtain dental treatment for themselves and their children from the general dental practitioner but it is apparent that here also the emphasis is on extractions, rather than fillings or other restoration of the teeth; in the case of children under five only one filling was inserted in the deciduous teeth for every three teeth extracted, whilst for expectant nursing mothers one tooth was extracted for every 1.7 fillings inserted. It is probable however that this is partly accounted for by the fact that these sections of the population also figure largely in the returns of emergency treatment for the removal of an aching tooth only, and in this connection it is to be hoped that continuing education and propaganda on the value and importance of conserving the natural dentition will ultimately have some effect in improving this situation.

## Mental Health Services

### *Liaison between Hospitals and Local Authorities*

In Wales there is a steady development of the community mental health services and a rapidly growing understanding of the inter-relationship of the roles of hospital and local authorities in the care of the mentally disordered. The extent and manner in which the service is functioning varies from area to area. In some parts the after care service is hospital orientated, whereas in other parts the local authority plays the major role. Periodic meetings between hospital psychiatrists and local authority staffs are the usual practice. In many areas all discharges from psychiatric hospitals are notified to the Medical Officer of Health and a follow up visit is requested where thought advisable.

Local Health Authorities vary in their methods of undertaking after care visits. Some rely on full time mental welfare officers, others on health visitors, but in the more rural counties the mental welfare officer often holds other offices, such as the registrar of births and deaths.

The reports of mental welfare officers are made available to psychiatrists and in most psychiatric hospitals periodic case conferences are held.

There is a shortage of suitably trained officers, some are trained social workers and others hold nursing qualifications but there are very few psychiatric social workers. Many local authorities have in-service training schemes and in this respect the hospitals are playing a valuable part in the training. Local Health Authorities have during the past year arranged for members of their staff to attend nationally recognized courses.

### *Training Centres*

The provision of training centre facilities for subnormal persons in Wales has been slow in development but nevertheless the position today does show a considerable advance since 1948. The graph illustrates the development of the service (page 154).

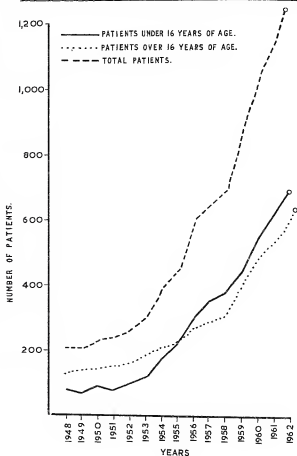
In a predominantly rural community a service such as this presents problems. Even small centres may have a widespread catchment area involving transport difficulties. Until such time as training centres have associated residential accommodation home training may be necessary, but this, particularly in the case of children is not regarded as ideal. The erection of training centres in Wales has understandably been concentrated in the more thickly populated areas.

The graph also illustrates that Local Health Authorities are now tending to place greater emphasis on the training of the school aged children, thus providing an alternative to formal education for those children who have had to be excluded from school.

### **Home Help Services**

It is appreciated that with the many demands on the local authority finances a permissive service will not necessarily be given its optimum share. Therefore it was not surprising that in a recent review of the home help service in Wales there were wide variations in the interpretation of need. In some areas the service is supervised by the Council's nursing officer and although it might be considered that this is a misuse of a senior nursing officer's time, this combined duty has certainly improved both the field relationship between the two services and also the clinical interpretation of need. At the same time such an officer has little time to spare for both the routine reviewing of cases and for the assessment of the efficiency of her staff. The aged and chronic sick constituted the majority of groups benefiting from the service and it was noticeable that few applications were received from expectant and nursing mothers which could possibly be attributed to the cost to the patient rather than to the lack of need. Throughout Wales it is estimated that the majority of cases given help are aged between 65 and 80 years. There have been instances where help has had to be temporarily discontinued in order that even more urgent cases could be assisted. The allocation of time to each case was not

# ATTENDANCE OF SUB-NORMAL PATIENTS AT TRAINING CENTRES.



always a true reflection of the need. The home nursing and the home help services need to be expanded for they are often of paramount importance in avoiding the necessity for institutional care for an old person. The service is staffed by approximately 3,000 part-time and about 150 full-time

home helps. In two areas male staff are also used and in a third area the husbands of the home helps give assistance in certain types of cases. Difficulties in the recruitment of suitable staff existed in some parts of the country for a variety of reasons.

## **Infectious Diseases**

### *Smallpox*

In 1962 there were three episodes of smallpox in South Wales but the nature of the connection between the episodes was not established. The first case involved a Pakistani who arrived in Cardiff on the 13th January, having arrived at London Airport from Karachi on the 12th January. The second episode occurred during February and early March in the Rhondda and Llantrisant district. This outbreak resulted in 24 confirmed cases of smallpox of whom six died. In early April further cases of smallpox were recognized at Morgannwg Hospital, near Bridgend. This resulted in 20 confirmed cases in addition to a patient who died on 25th March of what was in retrospect thought to have been smallpox. Altogether there were 13 deaths due to smallpox in the hospital. No secondary cases developed outside the hospital. The episode is described in greater detail in chapter 2 and in the Report already published in the Public Health and Medical Service series.

### *Diphtheria*

Eight cases of diphtheria were notified in Wales.

In March, a mentally subnormal child from Port Talbot attending a Glamorgan County Council Training Centre died of an upper respiratory infection. At post mortem the cause of death was certified as bronchopneumonia but a membrane was suspected as possibly being diphtheritic in origin; bacteriological examination confirmed this. Later the child's mother and brother were admitted to an isolation hospital suffering from diphtheria. The father and another brother were symptomless carriers. As the first case had attended a training centre the other occupants were swabbed. This was repeated several times and 12 persons were found to be carriers. They were treated and consequently became clear of infection. During the period April to September five cases of diphtheria were notified in Neath. Extensive swabbing of contacts at a number of schools and in the homes revealed a large number of symptomless carriers. A total of 145 carriers received hospital treatment during the year and further attempts made to promote immunisation procedures.

### *Poliomyelitis*

Forty-seven cases were notified in Wales during 1962.

In June and July there was an outbreak in Monmouthshire involving 36 persons (24 paralytic and 12 non-paralytic). The majority of these cases were in the Ebbw Vale and Nantyglo and Blaina districts. Trivalent oral (Sabin) vaccine was given to people of all ages, but although the outbreak soon ended there can be no proof that this was cause and effect. The programme of vaccination against poliomyelitis continued during the year

and every credit is due to the staffs of local health authorities and to medical practitioners for the work they have undertaken towards increasing the immunity level in the population. By the end of the year more than 1,013,000 persons between the ages of six months and 40 years had received at least one dose of vaccine either by injection or orally. At the end of December the following percentages of eligible persons had accepted vaccination.

|                                                    |        |              |
|----------------------------------------------------|--------|--------------|
| Children born in the years 1943 to 1962            | ... .. | 84 per cent. |
| Persons born in years 1933 to 1942                 | ... .. | 63 per cent. |
| Persons born before 1933 but under 40 years of age |        | 41 per cent. |

Persons in the older groups have not responded so well as children to the offer of immunisation. Further propaganda will be necessary to raise this group, in particular, to a satisfactory level of immunity.

### *Tuberculosis*

In 1962 there were 1,121 formal notifications of respiratory tuberculosis (423 per million population) whereas in 1952 there were 2,776 such notifications (1,073 per million population).

During the year 228 persons died from the respiratory form of the disease compared with 707 in 1952. The death rates for those years were 86 and 273 per million population respectively.

The comparative figures for local health authority areas in Wales are of interest as follows:—

**TABLE II**  
*Numbers of Notifications and Deaths—Respiratory Tuberculosis*

| Authority                    | 1952          |        | 1962          |        |
|------------------------------|---------------|--------|---------------|--------|
|                              | Notifications | Deaths | Notifications | Deaths |
| Anglesey C.C. ... ..         | 57            | 14     | 33            | 3      |
| Breconshire C.C. ... ..      | 36            | 8      | 19            | 6      |
| Caernarvonshire C.C. ... ..  | 163           | 45     | 62            | 10     |
| Cardiganshire C.C. ... ..    | 36            | 12     | 18            | 1      |
| Cardmarthenshire C.C. ... .. | 179           | 35     | 72            | 10     |
| Denbighshire C.C. ... ..     | 195           | 26     | 103           | 19     |
| Flintshire C.C. ... ..       | 119           | 45     | 46            | 10     |
| Glamorgan C.C. ... ..        | 832           | 218    | 316           | 85     |
| Merioneth C.C. ... ..        | 60            | 15     | 26            | 4      |
| Monmouthshire C.C. ... ..    | 347           | 78     | 92            | 21     |
| Montgomeryshire C.C. ... ..  | 34            | 6      | 14            | —      |
| Pembrokeshire C.C. ... ..    | 51            | 24     | 32            | 8      |
| Radnorshire C.C. ... ..      | 7             | 4      | 9             | 1      |
| Cardiff C.B.C. ... ..        | 284           | 80     | 136           | 25     |
| Merthyr Tydfil C.B.C. ... .. | 97            | 23     | 36            | 3      |
| Newport C.B.C. ... ..        | 132           | 23     | 34            | 5      |
| Swansea C.B.C. ... ..        | 147           | 51     | 73            | 17     |
| Wales ... ..                 | 2,776         | 707    | 1,121         | 228    |

### *B.C.G. Vaccination*

The number of contacts, school children and students vaccinated with B.C.G. in 1962 and in the four previous years reveals a sharp falling off in the year as is shown in the following table:—

|                                   | Numbers given B.C.G. Vaccination |                 |          |        |
|-----------------------------------|----------------------------------|-----------------|----------|--------|
|                                   | Contacts                         | School-Children | Students | Total  |
| Year ended 31st December, 1958... | 6,561                            | 11,112          | —        | 17,673 |
| Year ended 31st December, 1959... | 7,531                            | 20,173          | 156      | 27,860 |
| Year ended 31st December, 1960... | 7,067                            | 28,815          | 324      | 36,206 |
| Year ended 31st December, 1961... | 7,278                            | 29,062          | 265      | 36,605 |
| Year ended 31st December, 1962... | 4,425                            | 22,677          | 87       | 27,189 |

The following table shows the number of school children in each local health authority area who were skin-tested and the percentage found positive:—

| Authority                    | School-children    |                     |
|------------------------------|--------------------|---------------------|
|                              | Number skin tested | Percentage positive |
| Anglesey C.C. ... ..         | 641 (676)          | 15.1 (15.7)         |
| Breconshire C.C. ... ..      | 570 (1,049)        | 7.7 (13.1)          |
| Caernarvonshire C.C. ... ..  | 1,656 (2,377)      | 13.8 (7.4)          |
| Cardiganshire C.C. ... ..    | 1,218 (1,345)      | 5.0 (7.5)           |
| Cardiganshire C.C. ... ..    | 2,336 (2,392)      | 13.7 (17.8)         |
| Denbighshire C.C. ... ..     | 1,880 (3,342)      | 15.8 (18.4)         |
| Flintshire C.C. ... ..       | 1,769 (1,979)      | 40.8 (27.1)         |
| Glamorgan C.C. ... ..        | 6,461 (10,280)     | 20.5 (18.2)         |
| Merioneth C.C. ... ..        | 691 (35)           | 29.8 (11.4)         |
| Monmouthshire C.C. ... ..    | 1,645 (2,356)      | 14.8 (14.6)         |
| Montgomeryshire C.C. ... ..  | 530 (420)          | 14.2 (11.0)         |
| Pembrokeshire C.C. ... ..    | 1,236 (563)        | 13.3 (15.1)         |
| Radnorshire C.C. ... ..      | 244 (232)          | 9.4 (13.4)          |
| Cardiff C.B.C. ... ..        | 40,147 (5,080)     | 33.0 (15.3)         |
| Merthyr Tydfil C.B.C. ... .. | 4,572 (846)        | 9.2 (52.5)          |
| Newport C.B.C. ... ..        | 1,144 (3,399)      | 1.1 (6.5)           |
| Swansea C.B.C. ... ..        | 3,800 (572)        | 26.8 (19.2)         |
| Rhondda B.C. ... ..          | 1,009 (—)          | 28.6 (—)            |
| Wales ... ..                 | 71,549 (36,943)    | 26.3 (16.3)         |

*Note:*—Figures in brackets refer to 1961. Health and Welfare functions were delegated to the Rhondda B.C. as from 1st July, 1962, and therefore the 1961 statistics relating to the Borough were included in the figures ascribed to Glamorgan County Council.

### *Cancer*

Statistical information of deaths due to cancer can be seen in Appendix D of the Report. Particular comment should be made on cancer of two sites, viz., lung and stomach. In Wales each of these conditions is now responsible for more than 1,000 deaths annually. Deaths from cancer of the lung have risen markedly during the last decade whereas there has been no significant change in the number of deaths due to cancer of the stomach.

#### *Cancer of the Lung*

When deaths in Wales due to cancer of the lung are reviewed over the period 1952–61 a regional variation becomes apparent. The highest death

rates are found in the County Boroughs of Swansea, Newport, Cardiff and Merthyr Tydfil, in that order. The Counties bordering on the North Wales coast (Caernarvon, Flint and Denbigh) show the next highest rates followed by the South Wales Counties of Monmouth and Glamorgan. The lowest incidence is seen in the rural Mid-Wales Counties.

The areas of high mortality rates are in the more industrial areas, except that of Caernarvonshire where this does not so obviously apply.

# AVERAGE ANNUAL DEATH RATES PER 100,000 POPULATION

1952 - 1961

## CANCER OF LUNG.

## CANCER OF STOMACH.



### *Cancer of the Stomach*

When the crude death rates for cancer of the stomach are reviewed for the ten years ended in 1961, it will be seen that the highest rates are to be found in the Counties in North West Wales—Caernarvon, Cardigan and Merioneth, in that order, and the lowest incidence in Brecon, Radnor, Glamorgan and Monmouth. This geographical variation has been noted by many observers but no convincing explanation has been postulated.

Thus in Caernarvonshire there was a high incidence of both cancer of the stomach and the lung.

TABLE III

Table to Show Cause of Amputation

| Cause                              |                                 |     |       |     | Single | Multiple | Total | Per cent. of 'A' |
|------------------------------------|---------------------------------|-----|-------|-----|--------|----------|-------|------------------|
| <i>A. Trauma</i>                   |                                 |     |       |     |        |          |       |                  |
| 1.                                 | War—Forces                      | ... | ...   | ... | 22     | 1        | 23    | 3.2              |
| 2.                                 | War—Civilian                    | ... | ...   | ... | 2      | —        | 2     | .2               |
| 3.                                 | Industrial                      | ... | ...   | ... | 263    | 9        | 272   | 37.5             |
| 4.                                 | Traffic—Pedestrian              | ... | ...   | ... | 93     | 3        | 96    | 13.2             |
| 5.                                 | Traffic—Private Vehicle         |     |       |     |        |          |       |                  |
|                                    | Driver or Passenger             | ... | ...   | ... | 198    | 3        | 201   | 27.7             |
| 6.                                 | Traffic—Commercial Vehicle      |     |       |     |        |          |       |                  |
|                                    | Driver or Passenger             | ... | ...   | ... | 11     | —        | 11    | 1.5              |
| 7.                                 | Public                          | {   | Road  | ... | 6      | —        | 6     | .8               |
| 8.                                 | Transport                       |     | Rail  | ... | 23     | 4        | 27    | 3.7              |
| 9.                                 | Passenger                       |     | Water | ... | 1      | —        | 1     | .1               |
| 10.                                |                                 |     | Air   | ... | 2      | —        | 2     | .2               |
| 11.                                | Home                            | ... | ...   | ... | 37     | 2        | 39    | 5.4              |
| 12.                                | Sport                           | ... | ...   | ... | 14     | —        | 14    | 1.9              |
| 13.                                | Other                           | ... | ...   | ... | 28     | 4        | 32    | 4.4              |
| Totals                             |                                 |     |       |     | 700    | 26       | 726   | 100              |
| <i>B. Disease</i>                  |                                 |     |       |     |        |          |       | Per cent. of 'B' |
| 14.                                | Osteomyelitis                   | ... | ...   | ... | 52     | —        | 52    | 2.2              |
| 15.                                | Arteriosclerosis and Thrombosis | ... | ...   | ... | 1,146  | 110      | 1,256 | 53.9             |
| 16.                                | Tuberculosis                    | ... | ...   | ... | 12     | —        | 12    | .5               |
| 17.                                | Diabetic Gangrene               | ... | ...   | ... | 437    | 40       | 477   | 20.5             |
| 18.                                | Gas Gangrene                    | ... | ...   | ... | 5      | 1        | 6     | .3               |
| 19.                                | Other forms of Gangrene         | ... | ...   | ... | 110    | 10       | 120   | 5.2              |
| 20.                                | Chronic Varicose Ulceration     | ... | ...   | ... | 50     | —        | 50    | 2.1              |
| 21.                                | Malignancy                      | ... | ...   | ... | 233    | —        | 233   | 10               |
| 22.                                | Poliomyelitis                   | ... | ...   | ... | 31     | —        | 31    | 1.3              |
| 23.                                | Other Diseases                  | ... | ...   | ... | 84     | 6        | 90    | 3.8              |
| Totals                             |                                 |     |       |     | 2,160  | 167      | 2,327 | 100              |
| <i>C. Congenital Malformations</i> |                                 |     |       |     | 148    | 15       | 163   | —                |

Total Limbs Affected = 3,216.

TABLE IV

| Cause                                                  | Single |        | Multiple |        | Total | Per cent. |
|--------------------------------------------------------|--------|--------|----------|--------|-------|-----------|
|                                                        | Male   | Female | Male     | Female |       |           |
| Disease ...                                            | 1,458  | 702    | 135      | 31     | 2,326 | 72.3      |
| Trauma ...                                             | 612    | 88     | 26       | 1      | 727   | 22.6      |
| Congenital ...                                         | 73     | 75     | 9        | 6      | 163   | 5.1       |
| Totals ...                                             | 2,143  | 865    | 170      | 38     | 3,216 | 100       |
| Total Males = 2,313 = 71.9 %<br>Females = 903 = 28.1 % |        |        |          |        |       |           |

## Lower Limb Amputations

Peripheral vascular disease of the arteriosclerotic type continues to be the major cause of leg amputations, and more than a quarter of these were complicated by diabetes mellitus. Chronic varicose ulceration was the cause of amputation for 1 in 26 of all leg cases and malignant disease for 1 in 13 of such cases.

Traffic accidents caused more than twice as many leg amputations as did industrial accidents and the driver or passengers of private vehicles were involved twice as often as pedestrians.

TABLE V  
Leg Cases Analysed by Causes

| Cause                                      | Single | Multiple | Total | Per cent. of 'A' |
|--------------------------------------------|--------|----------|-------|------------------|
| <i>A. Trauma</i>                           |        |          |       |                  |
| 1. War—Forces ... ..                       | 15     | —        | 15    | 3.2              |
| 2. War—Civilian ... ..                     | 1      | —        | 1     | .2               |
| 3. Industrial ... ..                       | 114    | 9        | 123   | 25.4             |
| 4. Traffic—Pedestrian ... ..               | 86     | 2        | 88    | 18.7             |
| 5. Traffic—Private Vehicle                 |        |          |       |                  |
| Driver or Passenger ... ..                 | 163    | 3        | 166   | 35.2             |
| 6. Traffic—Commercial vehicle              |        |          |       |                  |
| Driver or Passenger ... ..                 | 10     | —        | 10    | 2.1              |
| 7. Public Transport { Road ... ..          | 5      | —        | 5     | 1.2              |
| 8.                    { Rail ... ..        | 14     | 3        | 17    | 3.6              |
| 9. Passenger { Water ... ..                | —      | —        | —     | —                |
| 10.               { Air ... ..             | 1      | —        | 1     | .2               |
| 11. Home ... ..                            | 16     | 1        | 17    | 3.6              |
| 12. Sport ... ..                           | 11     | —        | 11    | 2.3              |
| 13. Other ... ..                           | 16     | 2        | 18    | 3.9              |
| Totals ... ..                              | 452    | 20       | 472   | 100              |
|                                            |        |          |       | Per cent. of 'B' |
| <i>B. Disease</i>                          |        |          |       |                  |
| 14. Osteomyelitis ... ..                   | 51     | —        | 51    | 2.2              |
| 15. Arteriosclerosis and Thrombosis ... .. | 1,142  | 110      | 1,252 | 55.2             |
| 16. Tuberculosis ... ..                    | 10     | —        | 10    | .4               |
| 17. Diabetic Gangrene ... ..               | 435    | 40       | 475   | 20.9             |
| 18. Gas Gangrene ... ..                    | 4      | 1        | 5     | .2               |
| 19. Chronic Varicose Ulceration ... ..     | 106    | —        | 106   | 4.7              |
| 20. Other Causes of Gangrene ... ..        | 50     | 9        | 59    | 2.6              |
| 21. Malignancy ... ..                      | 206    | —        | 206   | 9.0              |
| 22. Poliomyelitis ... ..                   | 24     | —        | 24    | 1.1              |
| 23. Other Diseases ... ..                  | 74     | 6        | 80    | 3.5              |
| Totals ... ..                              | 2,102  | 166      | 2,268 | 100              |
| <i>C. Congenital</i> ... ..                |        |          |       |                  |
|                                            | 43     | 4        | 47    | —                |

Total Leg Cases = 2,787.

In 11.5 per cent. of all leg cases referred to the various centres fitting was not attempted or completed. In 5.1 per cent. of cases this was because of extreme age or poor general condition of the patient and in 6.4 per cent. because death supervened before fitting could be initiated. This failure is not surprising when one considers the high proportion of leg cases in the older age groups suffering from degenerative vascular disease involving other vital organs of the body.

TABLE III

Table to Show Cause of Amputation

| Cause                              |                                 |       |     |     | Single | Multiple | Total | Per cent. of 'A' |
|------------------------------------|---------------------------------|-------|-----|-----|--------|----------|-------|------------------|
| <i>A. Trauma</i>                   |                                 |       |     |     |        |          |       |                  |
| 1.                                 | War—Forces                      | ...   | ... | ... | 22     | 1        | 23    | 3.2              |
| 2.                                 | War—Civilian                    | ...   | ... | ... | 2      | —        | 2     | .2               |
| 3.                                 | Industrial                      | ...   | ... | ... | 263    | 9        | 272   | 37.5             |
| 4.                                 | Traffic—Pedestrian              | ...   | ... | ... | 93     | 3        | 96    | 13.2             |
| 5.                                 | Traffic—Private Vehicle         | ...   | ... | ... |        |          |       |                  |
|                                    | Driver or Passenger             | ...   | ... | ... | 198    | 3        | 201   | 27.7             |
| 6.                                 | Traffic—Commercial Vehicle      | ...   | ... | ... |        |          |       |                  |
|                                    | Driver or Passenger             | ...   | ... | ... | 11     | —        | 11    | 1.5              |
| 7.                                 | Public                          | ...   | ... | ... | 6      | —        | 6     | .8               |
| 8.                                 | Transport                       | ...   | ... | ... | 23     | 4        | 27    | 3.7              |
| 9.                                 | Passenger                       | ...   | ... | ... | 1      | —        | 1     | .1               |
| 10.                                |                                 | ...   | ... | ... | 2      | —        | 2     | .2               |
|                                    |                                 | Road  | ... | ... |        |          |       |                  |
|                                    |                                 | Rail  | ... | ... |        |          |       |                  |
|                                    |                                 | Water | ... | ... |        |          |       |                  |
|                                    |                                 | Air   | ... | ... |        |          |       |                  |
| 11.                                | Home                            | ...   | ... | ... | 37     | 2        | 39    | 5.4              |
| 12.                                | Sport                           | ...   | ... | ... | 14     | —        | 14    | 1.9              |
| 13.                                | Other                           | ...   | ... | ... | 28     | 4        | 32    | 4.4              |
| Totals                             |                                 |       |     |     | 700    | 26       | 726   | 100              |
| <i>B. Disease</i>                  |                                 |       |     |     |        |          |       | Per cent. of 'B' |
| 14.                                | Osteomyelitis                   | ...   | ... | ... | 52     | —        | 52    | 2.2              |
| 15.                                | Arteriosclerosis and Thrombosis | ...   | ... | ... | 1,146  | 110      | 1,256 | 53.9             |
| 16.                                | Tuberculosis                    | ...   | ... | ... | 12     | —        | 12    | .5               |
| 17.                                | Diabetic Gangrene               | ...   | ... | ... | 437    | 40       | 477   | 20.5             |
| 18.                                | Gas Gangrene                    | ...   | ... | ... | 5      | 1        | 6     | .3               |
| 19.                                | Other forms of Gangrene         | ...   | ... | ... | 110    | 10       | 120   | 5.2              |
| 20.                                | Chronic Varicose Ulceration     | ...   | ... | ... | 50     | —        | 50    | 2.1              |
| 21.                                | Malignancy                      | ...   | ... | ... | 233    | —        | 233   | 10               |
| 22.                                | Poliomyelitis                   | ...   | ... | ... | 31     | —        | 31    | 1.3              |
| 23.                                | Other Diseases                  | ...   | ... | ... | 84     | 6        | 90    | 3.8              |
| Totals                             |                                 |       |     |     | 2,160  | 167      | 2,327 | 100              |
| <i>C. Congenital Malformations</i> |                                 |       |     |     | 148    | 15       | 163   | —                |

Total Limbs Affected = 3,216.

TABLE IV

| Cause                       | Single |        | Multiple |        | Total | Per cent. |
|-----------------------------|--------|--------|----------|--------|-------|-----------|
|                             | Male   | Female | Male     | Female |       |           |
| Disease ...                 | 1,458  | 702    | 135      | 31     | 2,326 | 72.3      |
| Trauma ...                  | 612    | 88     | 26       | 1      | 727   | 22.6      |
| Congenital ...              | 73     | 75     | 9        | 6      | 163   | 5.1       |
| Totals ...                  | 2,143  | 865    | 170      | 38     | 3,216 | 100       |
| Total Males = 2,313 = 71.9% |        |        |          |        |       |           |
| Females = 903 = 28.1%       |        |        |          |        |       |           |

## Lower Limb Amputations

Peripheral vascular disease of the arteriosclerotic type continues to be the major cause of leg amputations, and more than a quarter of these were complicated by diabetes mellitus. Chronic varicose ulceration was the cause of amputation for 1 in 26 of all leg cases and malignant disease for 1 in 13 of such cases.

Traffic accidents caused more than twice as many leg amputations as did industrial accidents and the driver or passengers of private vehicles were involved twice as often as pedestrians.

TABLE V  
Leg Cases Analysed by Causes

| Cause                    |                                 |     |       |     | Single | Multiple | Total | Per cent. of 'A' |
|--------------------------|---------------------------------|-----|-------|-----|--------|----------|-------|------------------|
| <i>A. Trauma</i>         |                                 |     |       |     |        |          |       |                  |
| 1.                       | War—Forces                      | ... | ...   | ... | 15     | —        | 15    | 3.2              |
| 2.                       | War—Civilian                    | ... | ...   | ... | 1      | —        | 1     | .2               |
| 3.                       | Industrial                      | ... | ...   | ... | 114    | 9        | 123   | 25.4             |
| 4.                       | Traffic—Pedestrian              | ... | ...   | ... | 86     | 2        | 88    | 18.7             |
| 5.                       | Traffic—Private Vehicle         |     |       |     |        |          |       |                  |
|                          | Driver or Passenger             | ... | ...   | ... | 163    | 3        | 166   | 35.2             |
| 6.                       | Traffic—Commercial vehicle      |     |       |     |        |          |       |                  |
|                          | Driver or Passenger             | ... | ...   | ... | 10     | —        | 10    | 2.1              |
| 7.                       | Public                          |     |       |     | 5      | —        | 5     | 1.2              |
| 8.                       | Transport                       | {   | Road  | ... | 14     | 3        | 17    | 3.6              |
| 9.                       | Passenger                       |     | Rail  | ... | —      | —        | —     | —                |
| 10.                      |                                 |     | Water | ... | 1      | —        | 1     | .2               |
| 11.                      | Home                            | ... | Air   | ... | 16     | 1        | 17    | 3.6              |
| 12.                      | Sport                           | ... |       | ... | 11     | —        | 11    | 2.3              |
| 13.                      | Other                           | ... |       | ... | 16     | 2        | 18    | 3.9              |
| Totals                   |                                 |     |       |     | 452    | 20       | 472   | 100              |
| <i>B. Disease</i>        |                                 |     |       |     |        |          |       | Per cent. of 'B' |
| 14.                      | Osteomyelitis                   | ... | ...   | ... | 51     | —        | 51    | 2.2              |
| 15.                      | Arteriosclerosis and Thrombosis | ... | ...   | ... | 1,142  | 110      | 1,252 | 55.2             |
| 16.                      | Tuberculosis                    | ... | ...   | ... | 10     | —        | 10    | .4               |
| 17.                      | Diabetic Gangrene               | ... | ...   | ... | 435    | 40       | 475   | 20.9             |
| 18.                      | Gas Gangrene                    | ... | ...   | ... | 4      | 1        | 5     | .2               |
| 19.                      | Chronic Varicose Ulceration     | ... | ...   | ... | 106    | —        | 106   | 4.7              |
| 20.                      | Other Causes of Gangrene        | ... | ...   | ... | 50     | 9        | 59    | 2.6              |
| 21.                      | Malignancy                      | ... | ...   | ... | 206    | —        | 206   | 9.0              |
| 22.                      | Polioomyelitis                  | ... | ...   | ... | 24     | —        | 24    | 1.1              |
| 23.                      | Other Diseases                  | ... | ...   | ... | 74     | 6        | 80    | 3.5              |
| Totals                   |                                 |     |       |     | 2,102  | 166      | 2,268 | 100              |
| <i>C. Congenital</i>     |                                 |     |       |     | 43     | 4        | 47    | —                |
| Total Leg Cases = 2,787. |                                 |     |       |     |        |          |       |                  |

In 11.5 per cent. of all leg cases referred to the various centres fitting was not attempted or completed. In 5.1 per cent. of cases this was because of extreme age or poor general condition of the patient and in 6.4 per cent. because death supervened before fitting could be initiated. This failure is not surprising when one considers the high proportion of leg cases in the older age groups suffering from degenerative vascular disease involving other vital organs of the body.

**TABLE VI**  
*Artificial Legs—Types of Limbs Fitted*

|                                     | Single | Multiple | Total |
|-------------------------------------|--------|----------|-------|
| Metal ... ..                        | 1,886  | 148      | 2,034 |
| Wood ... ..                         | 93     | 13       | 106   |
| Plastic ... ..                      | 85     | 11       | 96    |
| Extension Prosthesis ... ..         | 13     | 4        | 17    |
| Peg or Pylon as permanent issue ... | 205    | 143      | 348   |
| Other type Prosthesis ... ..        | 29     | 3        | 32    |
| Not Attempted ... ..                | 120    | 33       | 153   |
| Not Fitted (patient died) ... ..    | 166    | 25       | 191   |
| Totals ... ..                       | 2,597  | 380      | 2,977 |

Study of the levels of the amputations being performed in leg cases show 54 Symes' amputations and 118 disarticulations at the knee. These operations provide excellent end-bearing stumps with many dynamic and sensory advantages to the limb wearer. Out of a total of 2,936 amputations 919 were done at mid-thigh or above mid-thigh level and 863 below mid-thigh but above knee level. From the prosthetist's viewpoint above knee stumps of greater than average length have no advantages unless Ertl's myoplastic and osteoplastic technique is used in doing the operation. The same technique provides a better below knee stump not only for the patellar tendon-bearing limb but for the wearing of more orthodox types with an increasing degree of total contact-bearing, including some end-bearing. In the arteriosclerotic cases 81 per cent. had above knee amputations and only 19 per cent. below knee amputations. In the diabetic cases, on the other hand, 50 per cent. were able to have below knee amputations.

**TABLE VII**  
*Sites of Surgical Amputation—Legs*

| Site                                 | Single | Multiple | Total |
|--------------------------------------|--------|----------|-------|
| Hindquarter ... ..                   | 12     | —        | 12    |
| Disarticulation at Hip ... ..        | 45     | —        | 45    |
| Up to 11 in. from tip of Trochanter  | 784    | 135      | 919   |
| Over 11 in. from tip of Trochanter   | 760    | 103      | 863   |
| Disarticulation at Knee ... ..       | 99     | 19       | 118   |
| Up to 5½ in. from tibial plateau ... | 446    | 65       | 511   |
| Over 5½ in. from tibial plateau ...  | 360    | 45       | 405   |
| Symes ... ..                         | 48     | 6        | 54    |
| Chopart ... ..                       | 6      | 1        | 7     |
| Lisfranc ... ..                      | 2      | —        | 2     |
| Totals ... ..                        | 2,562  | 374      | 2,936 |

### *Upper Limb Amputations*

In a total of 411 new upper limb cases whose rehabilitation was completed during the year 248 or 60 per cent. suffered amputation because of injury and 58 or 14 per cent. because of disease. There were 105 cases, mostly

young children, suffering from congenital deformities of the upper limbs who attended for consideration of the supply of prostheses. They made up approximately 26 per cent. of the total.

Of the 248 cases with amputation of an arm because of injury 149 or 59 per cent. resulted from accidents at work and 22 per cent. from injury in traffic incidents, mostly as drivers or passengers of private vehicles. Injuries in the home accounted for amputation in 21 cases. As in other years a high proportion of the traumatic cases suffered mutilation of a hand. There were 87 such cases or slightly more than  $\frac{1}{2}$  of the total of traumatic cases.

Of the 14 per cent. due to disease, malignant disease accounted for 27 cases, very nearly half of the total of arm amputations due to disease.

**TABLE VIII**  
*Arm Cases Analysed by Causes*

| Cause                              |                                 |     |       |     | Single | Multiple | Total | Per cent of 'A' |
|------------------------------------|---------------------------------|-----|-------|-----|--------|----------|-------|-----------------|
| <b>A. Trauma</b>                   |                                 |     |       |     |        |          |       |                 |
| 1.                                 | War—Forces                      | ... | ...   | ... | 7      | —        | 7     | 59              |
| 2.                                 | War—Civilian                    | ... | ...   | ... | 1      | —        | 1     |                 |
| 3.                                 | Industrial                      | ... | ...   | ... | 149    | 1        | 150   |                 |
| 4.                                 | Traffic—Pedestrian              | ... | ...   | ... | 7      | —        | 7     |                 |
| 5.                                 | Traffic—Private Vehicle         |     |       |     |        |          |       | 22              |
|                                    | Driver or Passenger             | ... | ...   | ... | 35     | 1        | 36    |                 |
| 6.                                 | Traffic—Commercial Vehicle      |     |       |     |        |          |       |                 |
|                                    | Driver or Passenger             | ... | ...   | ... | 1      | —        | 1     |                 |
| 7.                                 | Public Transport                | {   | Road  | ... | 1      | —        | 1     |                 |
| 8.                                 | Passenger                       |     | Rail  | ... | 9      | —        | 9     |                 |
| 9.                                 |                                 |     | Water | ... | 1      | —        | 1     |                 |
| 10.                                |                                 |     | Air   | ... | 1      | —        | 1     |                 |
| 11.                                | Home                            | ... | ...   | ... | 21     | 1        | 22    |                 |
| 12.                                | Sport                           | ... | ...   | ... | 3      | —        | 3     |                 |
| 13.                                | Other                           | ... | ...   | ... | 12     | 3        | 15    |                 |
| Totals                             |                                 |     |       |     | 248    | 6        | 254   |                 |
| <b>B. Disease</b>                  |                                 |     |       |     |        |          |       | Per cent of 'B' |
| 14.                                | Osteomyelitis                   | ... | ...   | ... | 1      | —        | 1     | 46              |
| 15.                                | Arteriosclerosis and Thrombosis | ... | ...   | ... | 4      | —        | 4     |                 |
| 16.                                | Tuberculosis                    | ... | ...   | ... | 2      | —        | 2     |                 |
| 17.                                | Diabetic Gangrene...            | ... | ...   | ... | 2      | —        | 2     |                 |
| 18.                                | Gas Gangrene                    | ... | ...   | ... | 1      | —        | 1     |                 |
| 19.                                | Other Forms of Gangrene         | ... | ...   | ... | 4      | 1        | 5     |                 |
| 20.                                | Chronic Varicose Ulceration     | ... | ...   | ... | —      | —        | —     |                 |
| 21.                                | Malignancy                      | ... | ...   | ... | 27     | —        | 27    |                 |
| 22.                                | Polymyositis                    | ... | ...   | ... | 7      | —        | 7     |                 |
| 23.                                | Other Diseases                  | ... | ...   | ... | 10     | —        | 10    |                 |
| Totals                             |                                 |     |       |     | 58     | 1        | 59    |                 |
| <b>C. Congenital Malformations</b> |                                 |     |       |     | 105    | 11       | 116   |                 |
| Total Arm Cases = 411.             |                                 |     |       |     |        |          |       |                 |

TABLE IX

*Surgical Arm Amputations to show Site*

| <i>Site</i>                   |     |     |     |     |     |     |     |
|-------------------------------|-----|-----|-----|-----|-----|-----|-----|
| Forequarter                   | ... | ... | ... | ... | ... | ... | 7   |
| Disarticulation Shoulder      | ... | ... | ... | ... | ... | ... | 5   |
| Up to 8" from tip of acromion | ... | ... | ... | ... | ... | ... | 62  |
| Over 8" from tip of acromion  | ... | ... | ... | ... | ... | ... | 34  |
| Disarticulation at Elbow      | ... | ... | ... | ... | ... | ... | 1   |
| Up to 7" from olecranon       | ... | ... | ... | ... | ... | ... | 61  |
| Over 7" from olecranon        | ... | ... | ... | ... | ... | ... | 33  |
| Disarticulation at Wrist      | ... | ... | ... | ... | ... | ... | 11  |
| Transcarpal                   | ... | ... | ... | ... | ... | ... | 1   |
| Part Mutilated Hand           | ... | ... | ... | ... | ... | ... | 87  |
| Total                         |     |     |     |     |     |     | 302 |

*Rehabilitation*

Although dealing with a large number of patients in the older age groups whose general physical condition and exercise tolerance were often poor when first seen, it is encouraging to be able to report that out of a total of 3,216 cases of all kinds under discussion 2,557 (80 per cent.) were successfully fitted and trained in the use of their limbs to an acceptable degree of independence. Unfortunately 268 (8·3 per cent.) died either before fitting was begun or before the completing of fitting and training; no fitting was considered practicable in 146 (4·4 per cent.), 245 cases (7·3 per cent.) failed in training mostly because of other disabilities (ischaemia of the opposite leg, cardiovascular insufficiency, cerebral arteriosclerosis, psychological factors, old age, etc.).

Although failures are very disappointing to all concerned the effort must be made if cases in the older age groups are to be enabled to live an independent life in their own homes.

*Congenital Deformities of the Extremities*

Children suffering from congenital deformities of the extremities have made up 5-6 per cent. of all new cases referred by consultants to the various limb centres in any one year. A few such cases were seen within a year of birth but only in the last two or three years has the importance of the early fitting of artificial limbs or limb-like prostheses been fully recognized. An artificial leg should be fitted at a time when the child begins to pull itself upright if the pelvis is to be kept level and spinal curvature prevented. It is equally important to begin fitting an artificial arm at the earliest possible age if the highest degree of bimanual dexterity is to be developed.

A survey of all babies born after 1st January, 1959, who had been referred to the various limb centres because of deformities of one or more limbs before the end of 1962 was carried out. In a total of 339 cases it was found that 166 had a deformity of one limb of a type commonly seen before the thalidomide incident, and 173 had gross deformities of two or more limbs often symmetrical and of the phocomelic type, the arms being seriously affected more often than the legs.

For a very young child with complete absence of both arms, two light plastic shoulder caps are fashioned and to these are attached upper arm and forearm pieces set at a predetermined angle so that when the child reaches forward the rounding of the shoulders enables the soft ended plastic forearms to grasp a doll or coloured toy. The next phase is to add passive elbow nylon shoulder and elbow joints which can be positioned by the mother or occupational therapist to give the child a wider range of movement. Small doll-like hands are supplied for attachment when required to the forearm pieces. The supply of more complicated designs is determined by progress but it should be possible to begin to encourage the child to use a small split hook before the age of two years and to begin to encourage self feeding soon after the age of two. The hook can be used passively in the first instance to grip coloured toys, but it is surprising how quickly young children learn to manipulate a split hook by shoulder girdle action or to move the thumb of the artificial hand. The training of these children must be kept interesting and the use of educational toys is of great value in teaching dexterity. In the arm training schools many "tricks" are employed by the occupational therapists to encourage bimanual dexterity and it is interesting to see little children wearing two artificial arms wheeling a small barrow or riding a child's tricycle and in the process finding out that they can do things using their prostheses which would be impossible without them. By the time a child has reached the age of 5 it should have gained sufficient dexterity and reached a stage of independence to be able to attend school along with normal children. There will be exceptions but it is strongly advocated that this should be the aim.

#### *Powered Arm Prostheses*

Since 1957 Professor Lindemann and Dr. Marquardt of Heidelberg have made considerable progress in the application of pneumatic power to arm prostheses using simple motors activated by compressed CO<sub>2</sub>, the valves being controlled by movements of the shoulder girdle, stump muscles or digits of the deformed arms or even by the chin. Each patient requires careful assessment of how the valves are to be controlled and sited, and to this end training to improve the power and range of the shoulder girdle or deformed digits or limbs is given for several weeks in a physiotherapy department.

A beginning is usually made with children between 1½ and 2 years of age using simple devices to start with and advancing by stages to more complicated mechanisms according to physical progress and intellectual development as is done with orthodox prostheses. In children with complete absence of arms or gross phocomelia it may be necessary in some cases to concentrate on using power on one side only, fitting a passive limb to the opposite side, but what can be done will depend on the sources of movements available for control of the valves. In this respect the movements of individual digits or grossly deformed member as valve activators are invaluable. In cases with amelia the first stage is to fit two plastic shoulder caps to the back of one of which is fixed the single cylinder motor. Arm frameworks are attached to the shoulder caps and these frameworks carry an internal and external rotation mechanism above elbow level. Soft plastic foam mitts are connected to the lower end of the forearm sections.

The motor is connected by tubes to the gas cylinder and the piston by bowden cables to the rotation mechanism. The valves are positioned in such a way that rounding of the shoulders in stretching forwards brings the motor into play so that the two mitts are brought together. Straightening the shoulders has the opposite effect, the mitts returning to a neutral position, but it will be seen that the two movements of the shoulder girdle bring about a "pat-a-cake" action of the mitts. In this way the child learns to grasp a doll or coloured toy and is started on the way to achieve bimanual dexterity. Considerable training is required before this is gained by young children.

Advance to the next stage will depend on the progress made in the interval but the next target is to teach the child to feed itself. For this purpose power is added to the hand and a pronation and supination movement to the forearm. The elbow is flexed passively by the knee or pressure against the table and locked in the correct position. The spoon or fork is gripped in the hand in a pronated position in such a way that it reaches the food. The spoon is pushed into the food by a forward bending movement of the upper trunk and when the power is applied the hand with the spoon is supinated and carries the food to the mouth. This may not be an elegant way of eating but it functions and dexterity is achieved by training and practice until the movements required become nearly automatic. It will be quickly realized that the number of movements that can be incorporated will depend on the ability of the child to activate the valves required for control of the power operation and the whole process may take several years to complete, but further stages are the incorporation of a gas operated split hook and powered flexion of the elbow. No one can doubt that the pioneer work of Dr. Marquardt has pointed a way to the provision of greater help for these unfortunate children and that these developments have wide implications for the future.

Arrangements are being made for the supply of powered prostheses to suitable cases in England and Wales at three centres, namely at the Nuffield Orthopaedic Hospital, Oxford, where the initiative of Professor Trueta and his staff and the help of the Oxford Regional Board secured an early start, at Roehampton and at one centre in the North of England. It is estimated that at least 100 seriously disabled cases may be helped by this means. Work is being continued with older children, along similar lines to that at Heidelberg, by the Medical Research Council's team at the Polio-myelitis Research Unit at Hendon, where a different type of motor has been developed. The Ministry's research officers are co-operating actively in this effort.

#### *The Prosthetic Management of Congenital Deformities of the Lower Limbs*

Children with congenital deformities of one or both legs are often seen at limb fitting centres. Many types of deformity present themselves from complete absence of both legs to minor shortening of one of them. Amelia is occasionally encountered but it is more common to see phocomelia of one or both legs at various levels. Absence of the fibula on one side with shortening both above and below knee and an equinovarus deformity of the foot, but with a normal hip joint and a fairly stable knee joint, is not uncommon. It is not unusual to see absence of the whole or greater part of

the shaft of the femur with a flexion deformity of an abnormal hip joint and a disorganized highly positioned knee joint, although the ankle joint and foot may be fairly normal at a level or even above that of the natural knee. Occasionally a condition equivalent to an amputation is seen, sometimes below knee, more rarely through or above the knee, the remaining part of the limb being normal. A congenital dislocation of the hip is a complication in some of such cases. Many bizarre variations of the deformities mentioned are met with, especially when both limbs are affected as often happened in babies affected by thalidomide. Symmetrical deformities are sometimes seen although it is more common for reduction deformities to follow the same pattern but to be of different lengths.

The correct programme of treatment of such children demands regular consultation between experts in various fields, including the orthopaedic surgeon and the surgeon doing limb fitting. Amputation is rarely indicated in the early years but manipulation and splintage can improve alignment and secure better weight bearing features. It should be the aim to get the child standing and beginning to learn to walk as nearly as possible to the normal times for these events. Artificial limbs or limb-like prostheses can be excellent splints and progressive alteration in the design and alignment of the prosthesis can bring about great improvement in the alignment of the deformed leg. A foot in equinus has a heel and plantar surface which can form an excellent weight bearing area and provide sensory information of the utmost importance to the child. Such areas should not be destroyed by amputation, but reconstructive surgery can be of great value in improving alignment and achieving stability of the limb to make it a better weight bearing organ. Function and cosmesis may not be synonymous, but function should not be jeopardized for the sake of minor gains in appearance. Amputation for cosmetic reasons should be delayed until the pattern of growth and weight bearing alignment are firmly established.

As in arm cases it is usual to start with simple devices and to progress to more complicated designs *pari passu* with growth and mental development. A baby without legs can be supplied at an early age with a plastic "flower pot" encompassing the pelvis and lower part of its body so that it can become accustomed to the upright position. Dr. E. P. Quibell of the Chailey Hospital gets excellent results using plaster of paris for this purpose. If necessary small castors can be added to the flat base of the "flower pot" so that the child can be easily moved about, or if it has strong arms make attempts to propel itself. It is a simple step "to split the flower pot in two" by supplying plastic sockets for each half of the pelvis and to add to each half struts ending in a rocker base so that greater balancing ability may be learned and with the aid of the physiotherapist the child may be encouraged to begin taking a few short steps. The rocker bases can be reduced in size and the struts lengthened as confidence is gained and by the age of 14 or 15 months the child should be able to walk short distances holding on to a baby cart or similar aid. By two years of age it should be possible to fit hip joints and at a later stage to replace the rocker bases by artificial feet and later still to add knee joints. With normal progress all this should be accomplished before the child is of school age but the timing of the stages will depend on the physical and mental development of the child and the co-operation and help of the parents.

This set up can be easily modified for children with severe reduction deformities of both limbs, the deformed feet being brought through appropriate openings in the sockets. Gentle traction can be applied to the feet, if thought desirable and it is surprising to find how deformities which at first sight seem to demand amputation, improve in alignment and eventually become useful weight bearing members.

For cases with less severe reduction deformities it is usual to fit what are described as extension or platform limbs. A plastic cast of the whole limb is taken and an appropriate weight bearing device is designed, consisting of a leather bootee for the foot supported by a metal stirrup or the shaped top of a wooden shin, the stirrup or shin being connected to a thigh corset by shaped side steels. The corset can, if necessary, be extended and reinforced to provide weight bearing by the ischial tuberosity. The limb is completed by the wooden shin and a compressed felt foot. In the early stages a small rocker base may be more effective than a foot. Once walking has started the addition of knee joints will depend on the level of the foot but the eventual aim is to secure the best possible function and an acceptable appearance. It is sometimes possible to "hide" the foot in equinus, and its bootee, within a well shaped duralumin shin, thus providing an excellent cosmetic and functional result.

All children require constant review to ensure alignment and length of limb commensurate with growth and physical development. It is often necessary to call them for assessment every three months. Duplicate prostheses are always provided.

#### *Courses*

Spring and autumn courses at Roehampton for orthopaedic consultants and senior orthopaedic registrars were well attended not only by consultants from hospitals at home, but by post-graduates from the Commonwealth and by scholarship candidates from other countries. In addition an autumn course for geriatricians and physical medicine consultants attracted a good attendance.

Many lecture demonstrations were given by medical officers of the service to senior medical students, nurses and remedial therapists at several of the major centres.

#### *Visitors*

There was no falling off in the number of visitors to Roehampton during the year. Many were consultants engaged in similar activities in their own countries, others were administrators studying the British system. A visit by Professor C. W. Radcliffe who did so much to introduce the patellar tendon bearing limb in America was particularly welcome.

#### *Research*

*The patellar tendon bearing limb for below knee amputees:* Initial experience with this limb was so promising that it was decided early in the year to give the project priority, and the teaching of medical officers and fitters in the techniques involved was pushed ahead to such an extent that the Minister was able to announce that it would be available in 1963 to suitable primary cases, to children and adolescents whose orthodox limbs

required replacement because of growth and to war pensioners in order of the age of their existing artificial limbs. It is hoped that all war pensioners would be supplied by the Spring of 1965 and all other patients by the end of 1967.

The main features of the patellar tendon bearing limb are weight bearing on the patellar ligament and the area of its expansions with suspension by an above knee cuff. A plaster cast of the stump is taken with stump passively flexed to 150° (30° of flexion) in such a way that pressure by the thumbs on each side of the patellar ligament is maintained until the cast has hardened. At the same time the fingers are used to mould the back of the socket lightly around the flexor tendons and into the popliteal area at the level of the posterior crease of the knee. Contact with the sides of the knee is maintained to prevent bulging but distortion of the sides and pressure on the hamstring tendons are avoided. When the cast has hardened sufficiently the pressure of the thumbs and fingers is removed, the patient flexes the knee to 90° and full hardening of the case is allowed to take place before it is finally carefully removed. A male cast is now made and rectified in such a way that, when the laminated plastic socket with its soft lining is formed from it, the shape is such that pressure is avoided on any sensitive areas and is transferred to the areas most able to withstand it, namely, the middle of the patellar ligament, the lower border of the patella, the antero-medial flare of the proximal end of the tibia and below the head of the fibula. Counter pressure in maintaining this weight-bearing contact is also provided by the back of the socket, but no constriction occurs. The effect of the modification of the male cast is that there is a distinct bridge or inward bulge across the front of the socket which impinges on weight bearing across the patellar ligament midway between the tibial tubercle and the lower border of the patella.

The next stage is to fit the laminated socket with 5° of flexion and 5° of adduction into an appropriately hollowed out block of willow and to bond it firmly in position. The block of willow eventually becomes the top section of the wooden shin of the limb. After being sawn across approximately 1 inch below the lower end of the socket the block is attached to the upper plate of an adjustable walking device. To the lower plate of the device is attached the lower end of the wooden shin carrying the artificial ankle, foot and shoe. The set up is now ready for weight bearing and for a check of the basic alignment features before the reinforced above knee suspensory cuff is added. The studs or buttons to take the side tabs of the suspensory cuff are attached to the socket at the level of the tibial plateau and behind the anatomical knee axis but their exact position is determined with the supracondylar cuff in position so that tension on the side tabs is exerted as the knee is extended. The cuff must fall in against the patella over a full 60° of knee flexion in the swing phase, while, for comfort in sitting, the tabs must relax throughout an additional 30° to give 90° of knee flexion so that the optimum points of attachment of the punched tabs to socket must be decided by trial of the socket and cuff on the patient.

The patient can now start walking in the set up consisting of suspensory above knee cuff, socket in the socket block, intervening alignment device and lower end of shin with ankle and foot. The alignment device enables adjustments in the alignment of the socket in all planes to be made, it can

be moved backwards or forwards, inwards or outwards and tilted in any direction and it also allows the foot to be turned in or out. It will be readily appreciated, however, that it is the successful adjustment of all the variables which finally determines the comfort and success of the fitting. It will also be appreciated that the patient must play an important part in determining the optimum adjustment giving complete ease and stability in walking and comfort in sitting. When satisfaction has been achieved the alignment is duplicated in the finished prosthesis by means of the University of California duplication jig, the use of which ensures that all the details agreed at the fitting stage are reproduced in the finished limb.

There is no doubt that this type of limb is more suitable for the majority of below knee amputees than any other type of limb and it is anticipated that 80 per cent. of all cases will derive benefit from it. A patient with a stump as short as 2 inches has been successfully fitted with it; but much depends on the stability of the knee joint and the power of the quadriceps. Very heavy individuals may require a thigh corset and sensitive scarring in weight bearing areas may be a contraindication. It is interesting to find that callosities and friction areas on stumps caused by long years of orthodox limb wearing disappear within a few weeks of transfer to the total contact type of fitting of the patellar tendon bearing limb. In addition redevelopment of the thigh muscles approximating to that of the opposite thigh is complete within a few months. Peripheral vascular disease is no contraindication to the use of the patellar tendon bearing limb.

Research has also been completed on various new feet and ankle units. Two projects have been approved and steps have been taken for production of the units. These are—

- (a) The Metalastik ankle. This is a bonded rubber ball and socket joint which permits movement in all directions including rotation about the vertical axis. This unit has proved most successful for active users in combination with the patellar tendon bearing leg, although alignment considerations make it difficult to apply to conventional metal legs without the use of mechanical devices for the alignment of the limb in relation to the individual patient's walking habits.
- (b) The SACH (Solid ankle cushion heel) foot in which true ankle movement is replaced by the compression of a deep sponge rubber wedge at the heel, the forepart of the foot imparting a rocker action. This foot has also been well accepted by patellar tendon bearing wearers, but is in general preferred by the more sedentary users. Alignment problems again make it difficult to use the foot with conventional legs without the help of special alignment devices.

Experiments have been continued towards the development of a practical technique for making a cast of the stump for the purpose of providing a total bearing socket for above knee amputations. A number of patients have been fitted with a sufficient degree of success to show that the technique has considerable promise. The evidence suggests that the total contact technique provides a more even and widespread distribution of the pressures on the stump with a reduction in unit pressures, particularly around the proximal areas, helps to promote the circulation of the stump and aids control of the prosthesis from improved proprioception. Stumps so fitted show clinical evidence of improved nutrition and a reduction of wear and tear on the proximal skin areas. It is hoped that, now that the patellar

tendon bearing programme has been launched, it will be possible to make more rapid progress with this project.

In relation to these projects, a technique of amputation survey developed by Dr. Dederich of Bonn, West Germany, provides above knee and below knee stumps which not only are more satisfactory for the control of any artificial limb and have a better blood supply but are particularly suited for total bearing and patellar tendon bearing limbs.

An attempt is being made to evaluate various devices to control the swing of the knee in above knee prostheses in comparison with the simple constant friction device now in use. Two different American hydraulic devices (the Henschke Mauch and the Hydracadence), a pneumatic device based on a design by Professor Radcliffe of the University of California, Berkeley, and an interrupted mechanical friction device are being tried by patients. It is already apparent that these rather complex and sophisticated devices are likely only to be of benefit to the more active walkers for whom they may not only improve the appearance of the gait but may provide some saving of energy.

The stabilizing knee designed by one of our contractors has been approved for issue by the firm concerned.

In the field of artificial arms, progress has been made, largely through work done at Imperial College on behalf of the Department, with the design of a centrally operated split hook. It has been found possible to combine this project with work on a low friction mechanism and development is now proceeding on this basis so that the hook can be operated either by a central push rod or by external pull. The basic mechanism will be able to accept curved fingers of any desired shape.

The Research Department has assisted and advised the Ministry's contractors in setting up a range of components for infant's arms to meet the sudden demand caused by the Thalidomide incident. A degree of standardization has been achieved so that the arms can be supplied quickly.

The Research Officers with Drs. Brewerton and Kinnier Wilson visited Heidelberg to estimate the possibilities of the powered arm which is now to be supplied at the three centres previously mentioned. The assistance given by Dr. Marcquardt and his staff was greatly appreciated. In the meantime, the Medical Research Council's team at the Poliomyelitis Research Unit, Hendon, has made progress and now has prototype pneumatic actuators ready for preliminary trials. Work at St. Thomas' Hospital on pick-up of the electric potential of muscle and the development of an electronic system to use this as a modulated control for a powered arm, such as the Hendon actuator has made progress. This work has also reached the stage where prototypes are to be made for trials on patients.

The Standing Advisory Committee has continued to meet under the Chairmanship of Sir Walter Mercer and along with the Executive Committee under the Chairmanship of Mr. H. Jackson Burrows has continued to give valuable advice and guidance.

Liaison with one most important group of users as represented by the British Limbless Ex-Service Men's Association, has been maintained and regular meetings with representatives of the Association have been held. The Ministry's Research Officers have kept in close touch with workers in other countries by correspondence and have received visits during the year from a number of their overseas colleagues.

## A. TRENDS IN HOSPITAL DESIGN AND EQUIPMENT

In 1960 this section of the report dealt with trends in the design of hospitals as a whole, foreshadowing the concept of the District General Hospital as defined in the Hospital Plan (Ministry of Health, 1962a) and in 1961 some illustrations were given of the way that current trends were affecting the design of hospital out-patient and casualty (accident and emergency) departments. With the stepping up of the Ministry's programme for issuing guidance material in the form of Building Notes and suchlike documents it is hoped to disseminate comprehensive information covering the design of all the more usual hospital departments and to keep this information up to date by revising the Building Notes at frequent intervals. It must be emphasized, however, that this guidance material is not mandatory, lest progress be stultified: nor will it be practicable for the Building Notes to cover the requirements of highly specialized departments. It is proposed therefore in this report to highlight trends of an experimental or unusual nature which may have an important bearing on hospital planning of the future. This year the subjects that will be discussed are the planning of operating theatre suites with particular reference to the role of physiological monitoring systems and the development of intensive therapy units.

*Operating theatre suites.* The impact of the Hospital Plan (Ministry of Health, 1962a) with its prospect of an increasing expenditure on hospital development has meant that emphasis has shifted from the building of small suites (rarely containing more than four theatres and often only two) to supplement accommodation at existing hospitals, to the planning of comprehensive operating departments to serve the new or redeveloped district general hospitals. These hospitals will require larger theatre suites than it has been customary to provide in the past and it will be by no means uncommon for as many as ten theatres to be provided in a single suite.

One of the main implications of this change has been a need for the review of methods providing sterile instruments and supplies to individual theatres as it clearly seems inappropriate and uneconomic to continue the practice of having a separate sterilizing room for each individual theatre or for each pair of theatres. The more usual solution is to provide a single area within the theatre suite for cleaning, assembling and sterilizing theatre instruments and to rely on the services of a central sterile supply department for providing gowns, gloves, dressings etc. In one or two instances however it has been proposed that the theatre instruments themselves should also be dealt with in a central sterile supply department. Whichever method is employed it is essential that the suite is planned in such a way that each theatre can receive a safe and reliable supply of instruments and other requirements. The increasing use of disposable materials may also become an important factor.

Another consequence of planning larger operating suites is a preference for the provision of a central post-anæsthetic recovery room within the suite rather than small recovery bays immediately adjoining each theatre. A single central room facilitates nursing supervision and although it means that patients may be more remote from the theatres and anæsthetic rooms and consequently from the services of the anæsthetists, it will frequently be justifiable to station an anæsthetic registrar in the recovery room for the duration of an operating session and it will be his responsibility to ensure that no patient is returned to the wards until fit to be moved.

Physiological monitoring systems have been mainly developed for highly specialized branches of surgery, particularly cardiac surgery, but their use is likely to extend and it is necessary to consider how they should be accommodated in operating theatre suites. There is a great deal to be said for placing as much of the equipment as possible outside the theatre itself. This facilitates the maintenance of asepsis within the theatre by limiting the amount of equipment with its dust carrying surfaces, and perhaps even more important by restricting the presence of personnel in the immediate vicinity of the operative field. In some teaching hospitals where viewing galleries or domes are provided the opportunity has been taken of using these to accommodate the monitoring equipment. Another solution is to provide a special recording room immediately adjoining the theatre. An example of the latter is illustrated in Figure 1, which shows a plan of one of the theatres

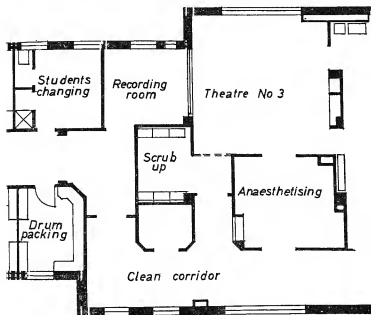


Fig. 1. Operating theatre with adjoining recording room, Hammersmith Hospital.

*Courtesy Messrs. W. H. Watkins, Gray & Partners*

at Hammersmith Hospital, London, W.12, which is used for open heart surgery. As will be seen the recording room, although immediately adjoining the theatre and with a glass panel in the intervening wall, is entered from the "dirty" corridor, thereby enabling personnel to enter the room without changing into theatre clothing. Figure 2 is a photograph taken in the recording room which shows the monitoring equipment with the theatre beyond. There is a two way inter-communication system which allows staff in the recording room—e.g. technician, clinical physiologist, cardiologist, etc.—to converse with the surgeon or anaesthetist in the theatre. On the left of the photograph is a four beam oscilloscope mounted on a turntable which during the course of an operation would normally be turned so that the screen is visible from the theatre. The oscilloscope tracings are repeated on the console in front of the technician so that those in the recording room can immediately draw the attention of the surgeon or anaesthetist to anything unusual. The oscilloscope can be used for the display of various tracings including those derived from an electroencephalogram and electrocardiogram as well as pressure and temperature measurements taken from the heart, arteries and veins. Leads from the electrodes, transducers, etc., are connected to a preamplifier in the theatre, from which the output is fed by means of cables to sockets in the theatre wall. Apart from the continuous oscilloscope tracings provision is also made for various measurements to be displayed on clock face dials. The screen on the right of the photograph is a television monitor which enables those in the recording room to see the progress of the operation. The television camera is mounted on the operating lamp.

*Intensive therapy units.* Progressive Patient Care, a method pioneered in North America, depends on the grouping of patients according to the severity of illness and dependence on nursing care rather than by classification of disease or sex. As evidence of this interest during the year under review were the publication of the Interim Report of the Department Working Group (Ministry of Health, 1962b), a Symposium on "The Organization of Patient Care in Hospital" held under the auspices of the Newcastle Regional Hospital Board and a symposium on "Progressive Patient Care" organized by the Birmingham Regional Hospital Board.

It is not the purpose of this Report to speculate on the extent to which Progressive Patient Care is likely to develop in this country nor on the nature of any such developments. The whole subject is in an experimental phase though it seems clear that the aspect which is arousing most interest is the concentration of critically ill patients in intensive therapy and intensive nursing units. As stressed in the Report of the Departmental Working Group it is to be hoped that hospitals will conduct their own experiments in the setting up of such units. These experiments need not involve heavy capital expenditure but, if well controlled, will provide material for future hospital planning. Broadly speaking there are two ways in which seriously ill patients can be grouped. The first method is to provide one or more areas apart from the main wards in which critically ill patients can be concentrated. Many, but not all, of those who will be nursed in such units will be post-operative patients and for this reason the units are often planned close to the operating suite. The second method of grouping the seriously ill is for such patients to be concentrated within the ward areas. There is nothing new in this concept; indeed it has long been common practice for ward sisters to use the beds which can be most readily kept under observation for those patients who are most seriously ill. The only questions which arise when planning for such groupings in new hospital buildings are the

extent to which the modern sub-divided ward can be adopted for the purpose and whether it is desirable for the seriously ill from adjoining ward units to be nursed in a common intensive care area. The two methods described above are not mutually exclusive and indeed may be combined in a single hospital. In the case of units provided apart from the main wards the emphasis will be on intensive therapy often involving the use of specialized equipment such as mechanical respirators. Patients requiring frequently repeated investigations as an aid to controlling therapy can also be conveniently grouped in such units. Although there can be no clear cut distinction between the types of patient nursed in these units and those grouped together within the ward areas the emphasis in the case of the latter will be on intensive nursing care rather than on specialized methods of therapy.

As already noted the Departmental Report sought to encourage the setting up of experimental units without recourse to extensive new building and in this connection the example of the unit established at the Royal Marsden Hospital, London, S.W.3, was commended. A plan of this unit is illustrated

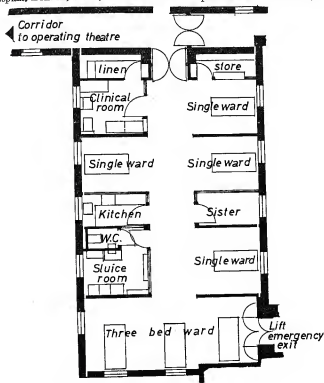


Fig. 3. Post-operative ward, Royal Marsden Hospital, London.

*Courtesy Messrs. Lancaster and Lodge.*

in Figure 3. As will be seen this is a comparatively simple adaptation. The unit was set up essentially as a post-operative recovery unit in what is a highly specialized hospital and, as such, is serving a most valuable purpose. Ideally it could be argued that there should be more space around the beds in the 3-bedded section for the accommodation of bulky equipment, but this criticism would be more valid in the case of an intensive therapy unit designed to serve a general hospital. Another hospital which has established an improvised intensive therapy unit is Guy's Hospital, London, S.E.1, where in the recently constructed surgical block a part of one of the general wards has been adapted for the purpose. Figure 4, is a photograph taken in the unit which illustrates some of the equipment which may be required at the bedside. Several other hospitals have shown an interest in the provision of intensive therapy units. They are too numerous to mention by name but a particularly noteworthy example is the 12-bedded intensive therapy unit which is being built at Broadgreen Hospital, Liverpool. This has been designed to serve the cardio-thoracic unit at the hospital and is being financed by the Nuffield Trust.

An experiment of a more ambitious nature is to be undertaken by St. George's Hospital, London. This hospital which now occupies a restricted site in central London is to be rebuilt some 5 miles away at Tooting. To assist them in the planning of the new hospital the Board of Governors have decided to build an experimental ward unit designed to facilitate the grouping of patients according to the severity of their illness. The plan, which is illustrated in Figure 5, provides for an intensive care area within a ward unit which also includes intermediate and self-care areas and is an example of the second type of grouping referred to above.

#### References

- Ministry of Health, 1962a. A hospital plan for England and Wales (Cmnd. 1604). London, H.M.S.O.
- Ministry of Health, 1962b. *Mon. Bull. Minist. Hlth*, 21, 218.

#### Ultrasonics in Medicine

The method of detecting underwater surfaces, submarines or shoals of fish or of estimating the depth of water, by recording the reflection from a transmitted pulsation is well known. Similar methods can be applied to recording flaws in metal and a number of industrial machines are already on the market for this purpose. If a flaw in metal can be detected, which in effect is a break in the density continuity, it is reasonable to expect that a similar method should be able to indicate density layers within the human body. A great deal of experimental work has already been done and much is still continuing: the field is vast and only some aspects of it can be mentioned here. Two diagnostic procedures are already established and are likely to be more widely practised as more experience in them is obtained and apparatus is improved.

In obstetric work the diagnostic ultrascanner can be used for such purposes as measurement of the foetal skull and diagnosing such conditions as hydatidiform cyst and carcinomatosis of the uterus. Two questions are likely to be asked. Will the method supplant obstetric radiological diagnostic procedures in time and is there any likelihood of damage to the foetus. To the first of these, it is perhaps too early to give an answer but it is probable that the two methods are complementary rather than mutually exclusive.



Where pregnancy makes it essential to avoid unnecessary foetal radiation and where ultrasonics can be employed satisfactorily, the latter may become the method of choice. Where gonad irradiation is less a problem, radiology, especially with the use of contrast media, may be preferred.

This presupposes a favourable answer to the second question posed above. Is there any danger of foetal damage from the use of ultrasonic diagnosis? It would appear that damage, if it could occur at all, would be of a mechanical nature and in no way akin to radiation damage. So far in a follow up of mothers and their babies there has been no evidence of undesirable after effects. Physicists who have been working on these new techniques are reassuring and claim that there is a very large margin of safety and suggest that the forces at the point of application in diagnostic ultrasonics are too small to cause any injury. There is therefore no theoretical ground for anticipating harmful effects.

The other field in which a considerable amount of diagnostic experience has already been accumulated is as an aid in the diagnosis of cerebral conditions. The method is relatively simple and rapid and without disturbance to the patient. In the diagnosis of subdural haematoma it provides a high degree of accuracy. In denoting a shift in the midline structures within the skull it is valuable to the radiologist in that it may indicate the appropriate radiological procedure required.

Therapeutic use of ultrasonic vibrations has developed mainly in the hands of otologists who have been using it in the treatment of Ménière's disease. Because it can be directed across a barrier it is possible to avoid some of the deafness which follows other methods of treatment. The dental surgeon may add it to his armamentarium and already apparatus is available which uses ultrasonics for cleaning instruments.

This new force in the hands of the diagnostician comes at a time when rapid advances are taking place in the radiological field with image intensification linked to television and the cine camera. Technical progress both in radiology and ultrasonics is likely to continue at a great pace. They are complementary, both bringing greater diagnostic potentialities to the service of the patient. Many problems remain to be solved and a great deal of further exploratory work to be done before the full applications of ultrasonics in medicine are known.

Whether there will ultimately be a department of ultrasonics or whether this new method, so closely allied to radiology, will be linked with the radiological department remains to be determined. In the meantime ultrasonics appears as a new diagnostic aid to the clinician and calls for a place in future hospital development.

## B. THE DISTRICT HOSPITAL CONCEPT AND ITS EFFECT ON MEDICAL WORK

The function of a hospital has changed very considerably over the years. No longer can it be described solely in terms of beds and nursing services for the individual physician or surgeon to do his work. The growth of knowledge, the increasing specialization which technological development has brought about, make for interdependence of clinicians and dependence of all on service departments.

The degree of expertise which the modern hospital possesses, precludes its provision in large numbers of small units. Hence the concept of the district general hospital, which brings together on one site all the medical disciplines; it contemplates the continued development of facilities in outpatient departments for the investigation and treatment of patients who would otherwise need to be admitted to hospital. This account will touch on many of the features which are developing in nursing, post-operative care, central supplies, and design as it effects elasticity in bed allocation and privacy.

Many of our present hospital centres are necessarily the combined effort of several physically separate hospitals which are cemented together by a common medical staff working with one administrative committee. These amalgamations of former voluntary, municipal and infectious disease hospitals sometimes with one common outpatient department, have achieved much in that those who work in them think of themselves as one. Indeed the increasing volume of treatments undertaken over the years with the knowledge that the standard of work continues to improve, bear testimony to this unification. Nevertheless, there are disadvantages in physical separation apart from the waste of time involved in travelling for medical staff and the difficulties of providing complete training for nursing staff. Moreover, geriatric and more particularly, psychiatric departments will often be newcomers to the general hospital scene.

As has been said the advances in the various fields of medicine are such that it is a team that now works best for the patient. In these circumstances the concept that all disciplines be on one site where communications are relatively easy is an essential background to the continued development of medicine.

The district general hospital of the future, then, will have within its walls provision for all ordinary specialities, including maternity, child care and facilities for the isolation of infectious disease. Some district general hospitals may have departments for radiotherapy, neuro-surgery, plastic surgery and thoracic surgery, but since these require larger catchment areas not all will have beds for these specialities. It is to be hoped, however, that these rarer disciplines will be represented in the outpatient departments of all district general hospitals so that a full range of medical opinion will be available locally even if for some specialized investigations or treatments as inpatient or outpatient it may be necessary for the patient to attend elsewhere.

Whilst there are some hospitals at the present time staffed to provide all the services just mentioned, they are few, mainly teaching hospitals, and fewer still provide them within the curtilage of one institution.

We have yet to discover the influences which departments will have one on another in a hospital whose main function is to provide service to a loosely defined community. Teaching hospitals are increasingly taking on a service function so that as the hospital service develops the district general hospital will more and more come to resemble the teaching hospital, even to assuming teaching functions, though these will be mainly post-graduate, for hospital residents and general practitioners in the area.

The disciplines which will come together in the district general hospital are differently shaped facets of medicine. Traditionally, surgery, medicine and obstetrics and gynaecology are the three main branches. Paediatrics and geriatrics which were formerly described as specialties are perhaps best regarded as cross sections of general medicine applying to particular age-groups while the numerous other disciplines including psychiatry might be thought of as vertical sections applying to patients of all ages. The stimulant effect of working together is evident to specialists in all fields and is essential for proper patient care. Advances in ophthalmology, for example, are more likely when ophthalmologists work closely with physicians than if they work in isolation. All are familiar with the patient whose condition demands the opinion of the chest physician, the cardiologist, the experts in metabolic disorders and those skilled in the use of the artificial kidney all working as a team. There are many other reasons, such as the need to provide cover for periods of absence and the ready availability of a second opinion, why consultants can no longer work to best advantage in isolation. Close association will bring to all and each something of the other.

There follows an account of the work of some of the departments of the new general hospital, together with an attempt to foresee the development of outpatient departments.

### *Accident Services*

The casualty departments of our hospitals, or accident and emergency departments as they are to be called in future, have been the subject of a good deal of informed criticism over the past few years. The reports by committees headed by Sir Harry Platt and Mr. Osmond-Clarke point the way to improvements for the future.

Most district general hospitals are likely to possess accident and emergency departments. These departments, the 'shop window' of the hospital in that access is direct, have not usually in the past been the clearly stated responsibility of a consultant. They have been staffed, with difficulty, at too low a level and far too many hospitals of too small a size have endeavoured to maintain a service. With many fewer departments in the country as a whole, with a change in the quality of the work, better staffing and better supervision should be possible. The skills which are needed to deal with some of the accidents brought to these departments are many and varied and the concentration on one site of all the departments which go to make up the hospital is an essential to the proper functioning of the accident department. There is now a consensus of opinion that the accident unit should form part of a general hospital and not be a separate accident hospital.

The report of the Sub-Committee on Accident and Emergency Services by Sir Harry Platt clearly favours the establishment of an accident ward with one clinician in administrative charge, leading a team of those who will be mainly interested in accident work including a physician. It is sometimes forgotten how much the physician is concerned with emergencies which will find their way quite properly to these departments. Indeed in one well-known American hospital with a highly developed "emergency room" it is the physician who has charge of the teams. Some hospitals will have accident wards where patients may be cared for by several clinicians, each taking charge in turn as his particular skill is needed. In other places patients will be removed from the accident ward to that of the specialty mainly concerned. Some hospitals have never used an accident ward, patients being admitted to the care of the specialists who appear to be predominantly or primarily interested. The best pattern of care will probably emerge during the next few years as Regional Hospital Boards re-examine their accident services and as experiment moulds opinion. Whichever system is followed, highly developed accident work must be team work.

The development of an accident service implies that some other arrangements will have to be developed for the treatment of "casuals". Arrangements are needed, particularly for patients who require medical attention some distance from home when their own doctor is not available.

### *Pædiatric Department*

Pædiatric departments are as a rule part of a general hospital and there is no particular merit in planning their accommodation as a separate block. The essential point is that all children, whatever the specialty of the consultant in charge should normally be grouped together where pædiatric nursing and general supervision is available. Access to the open air may well be desirable and where possible it can therefore usefully be placed on the ground floor.

Whilst all district general hospitals will have a pædiatric department there may well be a case for at least one hospital in the region so to develop a larger and more comprehensive pædiatric department that it becomes a hospital within a hospital and in these circumstances perhaps form a separate block within the boundaries of the main hospital.

Pædiatric surgery is unlikely for some time to find a place in every district general hospital; indeed it is doubtful if the number of patients would warrant it. There would, however, be enough pædiatric surgery, particularly for newborns, for a special unit in at least one hospital in a region and this is one of the reasons for putting forward the idea of this special pædiatric development at one hospital. Special training for nurses in the case of sick children will need to be continued and in such a special department this opportunity would readily present.

Closely associated with this main pædiatric department would be the facilities for children needing psychiatric investigation and treatment. The number of such children in a region for whom psychiatric beds are needed is such that they could probably be provided at one or at most two hospitals. The pædiatrician and the child psychiatrist have much to gain by working together.

One of the departments with which the paediatrician has become more closely connected during the development of the National Health Service is that for the treatment of infectious disease. The change in incidence and severity of infectious diseases has been such that it is unlikely to attract clinicians to it as a whole-time study since the age group of those affected is mainly that within the provinces of a paediatrician, though the general physician is of course concerned with adults with obscure and potentially infectious conditions. The I.D. unit will of course form part of the main general hospital though it may well be in a separate block.

This I.D. block may need to deal with the staphylococcal infections to which much attention is still needed. It should be possible by proper planning and attention to the discipline of isolation to prevent the spread of infection.

### *Geriatric Services*

The geriatric hospital is in too many instances now not a part of the general hospital. Historically the care of the old fell to local authorities whose hospitals were separate from the voluntary hospital. The ills from which the old suffer are not such that they separate from the main stream of medicine, rather they need to be made part of it.

The continued and special interest of the geriatrician in sick old people has resulted in methods of treatment which do much to relieve their problems, prevent bedfast conditions and result in discharge home. Most patients are admitted to geriatric wards direct from the community; the transfers from acute wards are not the bulk of the patients and they are not those most urgently in need of admission. The need for the investigation, diagnosis and subsequent treatment of the aged is no less than in other age groups. Treatment tends to be more often perhaps along rehabilitative lines and the social element in care may be prominent. The availability of specialists in other fields on the site must make other opinion whether it be surgical, neurological or psychiatric, easier to obtain and consequently more frequently used.

There will be some patients who require long-term care, investigations having been completed and no specialized treatment indicated. For these patients simple accommodation in smaller units near their homes may be desirable. The geriatric physician should be associated with these peripheral units.

Nearness or easy access to the district general hospital should also enable a wider spread of nursing duties over the whole staff. The need for physiotherapists, on whom geriatric patients make heavy demands, is more easily met when the duties of the hospital can be seen as a whole. The opportunity for physiotherapists to deal with long term medical problems as well as acute problems makes the job much more varied and one would hope staffing easier. Medical ancillary staff, strictly related to particular units, whether they be general, maternity, thoracic or geriatric are more difficult to allocate to make the best use of their total skill and in some fields they are more difficult to retain.

The day hospital is becoming an essential part of the geriatric department. It will be closely associated with the geriatric outpatient department. Patients attending the day hospital will be the concern of occupational therapists and physiotherapists, spending most of the day in the department.

### *Psychiatric Department*

Whilst in the last twelve years or so most general hospitals have appointed a psychiatrist to their staff, few have allotted beds for the admission of patients who need psychiatric treatment. There have been a few long-standing notable exceptions to this statement. The present intention is that district general hospitals shall provide psychiatric beds either within the main block or as a separate wing, depending on the number provided. This number is likely to be 100 or more beds when a population of 200,000 is to be served. Such a number will enable all but long term psychiatric treatment to be undertaken. It will be necessary to observe the effect of this provision in general hospitals before coming to conclusions as to any new arrangements for long stay patients. Existing psychiatric hospitals will until then be used for long stay patients. Whatever may be the final solution it is certain that the staff of the district general hospital must include in their duties care of the patients at long stay hospitals. The introduction of psychiatry into the district general hospital should not only make for easy and early admission of the psychiatric patient, but should have the effect of benefiting the other specialities.

The requirements of psychiatric patients will of course be different in that many of them will need freedom to come and go and for this reason they may be better located in a separate wing. They will also require much in the way of facilities for rehabilitation and occupational therapy. There may be room for experiment in the common use of the physical rehabilitation facilities available to the hospital by psychiatric and other patients. Like the geriatric departments psychiatrists will be likely to make increasing use of day hospital treatment. There will, as previously mentioned, be many varied opportunities for therapy by the medical ancillary staffs.

### *Maternity Department*

The maternity department is generally accepted as proper to the general hospital site, though it has tended of recent years to be housed in a separate unit. This is because work is organized differently from wards which are devoted to the care of the sick and, indeed, there is no reason for any close association with other patients. The wards may be of a different shape from those which form the multi-storey ward block. It would be wrong to imply however that a maternity department should never be part of a multi-storey block. There are many successful examples and provision in this way makes interchange of beds easier.

The maternity work for the area would be concentrated at the district general hospital and the expectation is that general practitioners will have the opportunity to care for their own patients through normal confinements. There would seem to be little purpose in having two separate maternity departments on the one site and doubtless the methods of bringing consultant and general practitioner services more closely into contact will be developed over the years.

The advantages to midwifery of close association with general medicine need no stressing but mention might be made of the special need for collaboration in the treatment of toxæmia of pregnancy or heart disease with pregnancy.

### *Outpatient Departments*

The number of outpatient attendances has risen steadily since the inception of the National Health Service. There has been a shift of emphasis with the growth of outpatient treatments. The numbers, including those attending "casualty" departments, (nearly 50 per cent.) has risen to 13 million with a total of 40 million attendances. The annual number of new inpatients has now reached 4½ millions and the ratio of outpatient and "casualty" attendances to inpatients is nearly 10 to 1 compared with over 12 to 1 in 1949. The increase over the decade 1950-59 in the total number of outpatients referred (excluding casualties) is 15 per cent., but it is mainly in traumatic and orthopaedic surgery, ante-natal work and the smaller specialties.

Some clinicians have taken every opportunity of doing necessary minor surgical work in the outpatient department (though facilities are often very limited). Farquharson's example of operating upon patients with hernia or varicose veins as outpatients, begun in 1954, has been followed by a few. Stevens and Dudley gave an account of operating on 162 patients with hernia or varicose veins, sending them home the same day from the outpatient department, with good result. Other clinicians have undertaken every possible investigation in the outpatient department, admitting a patient only when no other course lay open.

The provision of outpatient departments, adequate in size with appropriate facilities for undertaking surgery and, if needs be, detaining a patient overnight should do much to stimulate the investigation and treatment of conditions for which admission to a hospital bed is not in all cases necessary. There will of course be many patients who, on account of age or social circumstances are best treated in hospital, but there will be many for whom outpatient treatment may be not only practicable but desirable from several different points of view. There are many investigations which at the moment are undertaken on a patient after he has been admitted to hospital which might well be undertaken as an outpatient if facilities for rest in the outpatient department were provided either for a few hours or overnight.

Until complete provision has been made in outpatient departments the extent to which outpatient treatment may develop cannot be foreseen; nor can the influence of treatment in this way over the number of beds needed for inpatient treatment be determined. Many patients given the choice will choose treatment as outpatients, as was exemplified in the Aberdeen study mentioned above. What is essential, however, is that the facilities provided should not continue indefinitely to be makeshift but should be purpose built—that theatres should regularly be available to the outpatient department only and that the beds provided should not be diverted to the ordinary inpatient departments of the hospital, but kept for the sole use of the outpatient—including, if necessary, overnight stay.

Similarly investigatory facilities in radiology and pathology need to be capable of meeting the demands likely to be made upon them by outpatients whether directed there by the hospital staff or general practitioners of the area. Physiotherapy departments are likely to be the scene of substantial expansion both for the general departments and for the geriatric patients of whom there will be increasing numbers.

Outpatient facilities need thought from other points of view too. Well conceived outpatient appointment systems which are seen to operate efficiently, adequate arrangements for reception and comfortable facilities for such waiting as may be inescapable will all combine to make treatment as an outpatient a method of choice.

### *General*

The district hospital is likely as a rule to be one of 600 to 800 beds, serving a population of 150,000. There will, however, be many areas of greater population where the hospital will be larger. It is possible that the number of general beds set out in the Hospital Plan will prove to be generous as our techniques of management improve and as the Plan for Local Authorities Health and Welfare Services is fully developed although maternity requirements have had to be revised. For these reasons it may be wiser sometimes when it is a question of two or three hospitals to serve an area to choose two. This may make it easier to provide special departments of adequate size. It will be possible in larger hospitals to employ costly equipment which might well be unjustifiable in smaller institutions. While many of the changes described would affect medical staff there will also be changes which will affect ancillary and nursing staff as well. Thus in laboratories, the demand upon which rises steeply with ever increasing pressure on technicians, electronic devices are likely to be employed which undertake chemical determinations of blood and other body fluids, estimations of blood volume, counts of red and white cells and other elements in the body.

Similarly in X-ray departments bulk processing arrangements, with the speedy production of dry film will influence the work and the design, the introduction of X-ray image intensifiers and monitors enable examination with less dosage to the patient and easier reading by the radiologist. Other devices are likely to be introduced into radiological departments which will make for easier working. In all departments better methods of communication will be developed as well as speedier methods of copying and filing.

One of the rigidities which has been perpetuated in our hospital service so far is the fixed allocation of beds to individual consultants. There are many occasions when the diversion of the use of beds from one purpose to another would be advantageous. It is to be hoped that both in design and concept it will be easier to give effect to new ideas in our new hospitals. Suitable design will allow for allocations to vary according to the need of the specialties or of the sexes. Better design will enable patients to be afforded more privacy in the wards and treatment in single rooms for those patients whose presence in an open ward causes distress.

The district general hospital will form the meeting place of all the doctors who work in the community which the hospital serves. Libraries, available to all, and common rooms will serve to increase the personal contact between the general practitioner and the hospital staff.

The part which the general practitioner plays in the district general hospital of the future remains to be worked out. Given the kind of nursing pattern envisaged under progressive patient care the bringing closer together

of consultant and general practitioner medicine may well create new opportunities for service by the general practitioner in the hospital service. This may be looking further ahead than many of us are conditioned to at the moment and there may be areas where such arrangements are not practicable, but the staffing of district general hospitals should create opportunities for the hospital service to introduce practitioners who wish to combine life in general practice with service in hospital. Whatever developments of this kind occur, the district general hospital of the future must take part in graduate training at three levels—for the newly qualified, for the intending specialist and for the general practitioners of the area. This should become one of the most important influences for unification in the Health Service with the district hospital as the medical information centre for the district.

## POINTS FROM GENERAL PRACTICE

During the year the Council of the College of General Practitioners issued a document entitled "The Content of general practice". Although designed mainly for people concerned with the education of the family doctor it has a wide interest for there is much current thought on what is meant by general practice and what is to be expected from it. It is proposed in this chapter to refer to one or two points from the report which may have some significance.

The section on the social aspects of general practice refers to the Health and Welfare Services. Perhaps the most encouraging development in this field is the allocation of health visitors to individual practices rather than geographical areas. This becomes a more practical proposition where there is a partnership or a group practice and advantages claimed both by doctors and health visitors include:—

- (1) Better continuity of care for the patient with avoidance of duplication or contradictory advice.
- (2) Extended scope for preventive and social medicine particularly in problem families, vulnerable groups, follow-up of defaulters, investigation and after-care of psychological breakdown and home care of elderly patients.
- (3) Close association of the health visitor with the doctor in the patient's mind thus emphasizing her nursing background and rendering her more acceptable.

Naturally the arrangements which are made have to be varied to fit in with conditions and the availability of health visitors, but the essential feature of a fully developed scheme is an association of the health visitor with the practice itself. She must have mutual access to records and frequent or even daily meetings with the doctors. The outcome of this is not the subordination of health visiting to general practice, but the development of a working partnership. In those areas such as Oxford and Hampshire where this arrangement is best developed, it has not been found necessary to engage extra staff to meet the requirements of the school.

The report also refers to the various Government Departments which contribute towards general medical care. These include the Ministry, the Home Office, Ministry of Pensions and National Insurance, Ministry of Labour and the National Assistance Board. This is an interesting reminder of the way in which the work of the general practitioner is linked with the efforts of those concerned with the administration of our social legislation. Liaison work between doctors and these Government Departments takes up much of the time of the Regional Medical Service.

Prescribing and certification are dealt with in the section discussing the organization of general practice. A patient's visit to the doctor commonly

results in his being given a prescription form and a certificate of incapacity completed as the doctor thinks appropriate. The care and judgment taken in completing these documents must reflect the standard of practice of the doctor. Neither form has altered materially for many years but the significance of what is written on them is without doubt more far-reaching than was formerly the case. Perhaps this is more in evidence with the writing of prescriptions on Form E.C.10 and it may be of interest to mention some of the influences which are brought to bear on a doctor in his prescribing habits. He is asked to give enough medicine to last a week, except with chronic patients where he should give larger amounts so that prescription charges do not fall too heavily. He is discouraged from prescribing any preparations advertised to the public or considered by the Cohen Committee to be either not of proven value or more of a food than a drug. He is given a list of these preparations and is asked to bear in mind the question of cost. Clinical considerations, however, are paramount. The doctor receives training in therapeutics and pharmacology during his undergraduate and pre-registration days and develops ideas of his own influenced by those with whom he may have worked during his period of assistantship. He receives authoritative information from post-graduate courses, clinical meetings and bedside consultations and there is also no lack of advice in the written word from a number of sources. The British National Formulary and Prescribers' Journal are circulated to doctors from the Ministry though each is produced by an independent committee. In addition, many of the medical journals have a special section on drugs and recently introduced preparations. These influences are doubtless modified by the doctor's own experience and perhaps also by visits from Regional Medical Officers particularly in cases where prescribing costs are above average. Such visits are mainly to discuss with the doctor his prescribing pattern relative to a general average and are aimed at keeping a perspective in line with current teaching and at correlating economy with effective treatment. Commercial advertising inevitably becomes an important influence in suggesting which particular preparation or brand should be prescribed and why it should be preferred to a non-proprietary product having the same or similar therapeutic action. Advice of this nature comes in a number of ways such as journal and postal advertisements, personal calls by representatives, regular publications in magazine form distributed free, card indexes, and samples. The function of Prescribers' Journal is to give reliable information on the claims made for these products.

Treatment in general practice is not, however, simply a matter of prescribing drugs. The question of environment during recovery is equally and often more important. When the patient is an employed person, the issue of a certificate of incapacity thus assumes considerable importance. The decision to give such a certificate is in most cases an obvious action to take but there are repercussions which may only be appreciated in the light of family circumstances and, hence, by the practitioner who acts as a family doctor. The patient may be the bread-winner and since sickness benefit is not related to income, financial stresses may soon appear. Hence the desirability in the short-term case of a return to work as soon as possible, without taking unnecessary risks. The mental attitude towards absence from work where incapacity is prolonged varies from person to person, but in general the sense of urgency to return gradually wanes as the weeks pass by. The doctor must

be mindful of the harmful effect on personality of long-term incapacity as he completes monthly or three-monthly certificates. It is here that the appreciation of the value of rehabilitation in general and of industrial rehabilitation units in particular is essential, particularly in selected cases where permanent residual disability is likely to need some form of training for lighter employment. The system of reference to the Regional Medical Service can help in this type of case, but is advisory and needs the general practitioner's care and the patient's co-operation. Certification of incapacity for work is, therefore, not merely one of the unavoidable formalities of general practice. It has an economic and therapeutic content, the latter needing particular care and judgment where a residual disability means a change of occupation.

### *Research*

One of the most heartening of the activities of the College of General Practitioners has been stimulation of research in general practice. The Diabetes Survey in Birmingham is an example of what can be achieved. As with hospital work, research is for those who are interested, enthusiastic and prepared to adapt daily routine in the practice to whatever discipline is needed in the collection and study of information. The great feature of the first decade of the College has been the development of collaborative research into the natural history of diseases and the results of treatment. The Research Committee of the Council of the College of General Practitioners has always been ready to help in planning research and the Medical Research Council's Committee for Research in General Practice has assisted with grants. A number of special studies have been financed through fellowships available through the College.

### *Reference*

College of General Practitioners, 1962. *Brit. Med. J.*, ii, 1392.

## MATERIA MEDICA AND TOXICOLOGY

*Quality Control of Therapeutic Agents*

The public and the medical profession, not unreasonably, expect that substances supplied for the prevention and treatment of disease should be of satisfactory quality as regards purity and potency. Unless doctors can rely on the assurances given them in these matters it is obvious that there are several ways in which their patients may be at risk. The health of a diabetic who is being treated with insulin depends, for instance, on the actual amount of the active principle present in a unit quantity being within very fine limits as stated on the label of the container. Again, for many drugs with specific therapeutic actions and which can readily be subjected to chemical tests of strength or purity, particular preparations may also need to be controlled for uniformity in a physical property such as solubility which, if variable, could alter their degree or rate of absorption and thus render them clinically unreliable. There is, moreover, always the chance that any therapeutic agent may from time to time contain an impurity such as a contaminant introduced during the course of manufacture or a decomposition product arising during storage, which could cause it to have what can be termed an "abnormal" (i.e. unexpected) toxicity.

Generally speaking the quality control procedures undertaken by drug manufacturers in this country are very thorough and are more than sufficient to ensure the reliability of their products in clinical use. It is, however, not generally realized that in the United Kingdom there has been in force since 1925 legislation, admittedly with a limited application, which provides an additional guarantee of the quality and safety of certain therapeutic agents. The current form of this legislation is Part I of the *Therapeutic Substances Act, 1956* which controls the manufacture for sale and the importation of certain substances which need to be tested biologically in order to ensure their purity and potency. Under the Act manufacture for sale or import of these substances in England and Wales requires a licence from the Minister of Health and before such licences are issued the premises and equipment to be used in manufacture are inspected and enquiry is made into the suitability of medical and technical staff who are to be responsible for the production and testing. In many instances Regulations made under the Act prescribe the standards to be used in specific tests of strength, quality and purity which holders of licences are required to apply to all batches before issue for sale, while the general requirements of these Regulations control the labelling of licensed products as well as requiring that material changes in the manufacturers premises as well as changes in the approved "expert" staff shall be reported to the Licensing Authority. It is also possible under the Act to require holders of licences to submit samples of specified batches for independent testing and not to sell any

part of such batches until authorized to do so. The most important groups of substances currently included in the scope of this legislation are:—

- (i) Vaccines, toxins and antigens ;
- (ii) Sera and antitoxins ;
- (iii) Antibiotics (preparations intended for injection) ;
- (iv) Hormone products (such as insulin and corticotrophin) ;
- (v) Enzymes and enzyme inhibitors ;
- (vi) Human blood products and
- (vii) Surgical material such as ligatures and sutures.

Inspection undertaken by members of the Ministry's medical staff continues to show that, almost invariably, the conditions under which these groups of therapeutic substances are manufactured in England and Wales continue to be very satisfactory. This conclusion can be supported by the results of the examination of batch protocols and by the biological testing of samples undertaken during the year on the Ministry's behalf by the Biological Standards Department and the Division of Immunological Products control of the National Institute for Medical Research.

The purity and potency of a majority of therapeutic agents can readily be assessed by means of chemical and physical tests, that is without using biological procedures. Important in this connection are the monographs of the British Pharmacopœia and of the British Pharmaceutical Codex which relate to about 1,500 substances used in medicine. These monographs not only describe the testing procedures appropriate to each substance but also lay down standards which, if attained by samples of the substances under test, will ensure that they are pharmacologically active and, therefore, likely to meet clinical requirements. The standards of the B.P. and the B.P.C. are not statutory as are those of the Therapeutic Substances Act but, nevertheless, they represent an accepted level of quality which a competent drug manufacturer can be expected to attain and against which his products can be measured by public analysts called upon to examine samples of such products taken as a routine by local authorities in the discharge of their duties under the Food and Drugs Act, 1955 under which it is an offence to sell any drug not of the nature, substance or quality demanded by the purchaser.

New editions of the British Pharmacopœia and of the British Pharmaceutical Codex are now issued at five yearly intervals with substantial addenda published 2-3 years after each main edition. From time to time amendment regulations are made under Part I of the Therapeutic Substances Act, 1956, either to cover additional substances which the Minister of Health is advised by the statutory committee concerned should be brought under the scope of the act or to improve the testing and other procedures applied to substances already included ; but the drafting of such amendment regulations is a complicated and lengthy process involving consultations with manufacturers and with Medical Research Council establishments followed by presentation of the result to Parliament. It follows that for newly introduced therapeutic agents standards for the control of quality independent of those applied in the first place by the manufacturer are rarely

available either in the form of B.P. and B.P.C. monographs or in Therapeutic Substances Act amendment regulations in less than two or three years.

It should be made clear that any quality control of therapeutic agents possible at the present time which is independent of the manufacturer, even if it could be made much more comprehensive and prompt in its application to new substances, would not be concerned either with what may be termed the "inherent" toxicity of such substances or with their therapeutic efficacy. These are matters quite separate from quality control and at present only one of them, namely "inherent" toxicity, is governed to some extent by existing legislation. Thus under the Pharmacy and Poisons Act, 1933 the sale and supply of certain substances used in medicine and regarded as poisons are restricted; many of them are, for instance, placed in Schedule 4 of the Poisons Rules under this act by which they cannot be supplied to the public except on medical, dental or veterinary prescription. Narcotic substances used in medicine are in a special position in that they come under the Dangerous Drugs Act, 1951 by which their manufacture and importation are controlled as well as their supply to the public, being restricted to medical prescription. Yet a third group of substances with important medical uses, such as antibiotics and the corticosteroid hormones, not being poisons are, nevertheless, restricted to medical prescription but by a different means in that they come under Part II of the Therapeutic Substances Act as being capable of endangering the health of the community if used without proper safeguards.

More will be said later in this chapter on the subject of "inherent" drug toxicity but here again, as with quality control, the restrictions available under the existing extremely complicated legislation are not readily and promptly applicable to new substances which may be offered as medicines either to doctors or to the general public. Voluntary restrictive action through manufacturers or the medical and allied professions is, of course, available.

### *Therapeutic Efficacy*

Although the major research effort of the pharmaceutical industry continues, as formerly, to be engaged in the search for entirely new drugs, the study of structure-activity relationships has always been a promising field for pharmacological investigation and much work is now being directed to this end in laboratories maintained by manufacturers. It should be pointed out that this form of research tends to be aided by additions to the chemically different substances which can be shown to give a specific pharmacological response when applied to a particular tissue or organ, the reasons being that the greater the number of such compounds the greater the opportunity to determine the active moiety giving rise to that response. Perhaps the classical example of a successful outcome to this type of study was the discovery that the active fraction of the bacteriostatic dye prontosil was, in fact, para-aminobenzene-sulphonamide but research of a similar nature has, in recent years, enabled modifications to be made to the basic molecule of penicillin which have resulted in new antibiotics deliberately designed to meet specific therapeutic requirements. Some work of this kind has been directed towards drugs which have been in use for much longer periods and which, in general, have less complex molecular structures than those of the antibacterial agents already mentioned. Two

recent examples are the development of the active substances derived from chloral hydrate and from phenacetin. In both instances the derived compounds may prove to have clinical advantages over the original drugs, though this can be verified only by prolonged use. It is always possible that chemical, biochemical and pharmacological studies of this sort may result in the discovery of a drug derivative or metabolite which is either more therapeutically effective or less toxic than the parent compound. It is also possible that the compound thus discovered, if of simpler structure than the parent, may be more readily synthesized, and therefore both cheaper to make and, possibly, more readily freed from impurities. Moreover the range of clinical usefulness of the derivative may be wider than that of the original drug since the metabolic organs of the body such as the liver will not be required to deal with it before it becomes therapeutically effective. In cases of disease of these organs clinical use of the parent compound but not the derivative may be contra-indicated. Work of this nature upon the structure-activity relationship of drugs, both old and new, will undoubtedly continue and can be expected to yield further valuable results in the form of simpler as well as safer remedies.

During the year 1962 the Standing Joint Committee on the Classification of Proprietary Preparations, to which special reference was made on page 234 of the Report for 1959, assigned some sixteen drugs to the two categories "N" and "P". Most of these fell into one or other of the two therapeutic groups which reflect the major research efforts of the pharmaceutical industry over recent years—namely drugs for use in the treatment of infections or infestations, and drugs to be used in the alleviation of mental disorders. Of the remaining drugs classified by the Committee in 1962 two were cytotoxic agents for the treatment of certain types of neoplastic disease, and the others included a compound which interferes with the metabolism of alcohol, a cream to protect against ultra-violet light and the enzyme penicillinase, which can be used clinically to remove penicillin rapidly from the body should its presence prove to be detrimental rather than beneficial.

### Applied Toxicology

Although the term "poisoning" may nowadays have lost its exclusively forensic connotation, what may be termed "applied toxicology" attracts more widespread interest at the present time and it may be considered under three main heading:—(i) acute poisoning (suicidal, accidental and, occasionally, homicidal); (ii) hazards from drugs used in medical practice and (iii) the possible risks arising from the use of food additives and of pesticides in agriculture and food storage.

(i) *Acute Poisoning.* This was considered by a special sub-committee of the Standing Medical Advisory Committee and a report (Ministry of Health, 1962) was issued in 1962. In this it was pointed out that the annual total of deaths from poisoning in England and Wales now amounted to nearly five thousand and that this figure, besides being of the same order as that of total fatalities from motor vehicle traffic accidents, appeared to be increasing each year. The annual total of non-fatal cases of poisoning is unfortunately not known with any accuracy, though clearly it is much larger than the number of deaths, perhaps twenty times as many. In their report the Sub-Committee made four

main recommendations, namely, that an organized system should be established, based on district and regional treatment centres, for the management of cases of acute poisoning in hospitals, that there should be an information service to which doctors could turn for advice about the nature and toxicity of the various products and preparations to which patients might become victims suicidally or by accident, that drug tablets and capsules might be marked so that they could be readily identified and that there should be a centre for academic research on toxicology. By the end of 1962, considerable progress had been made in designating regional and district treatment centres for acute poisoning such as had been suggested in the Committee's report. In addition, the Ministry, with the collaboration of the Medical School and the Teaching Hospital, had begun the setting up at Guy's Hospital in London of a National Poisons Information Centre which eventually will be linked with corresponding centres at Edinburgh, Cardiff and Belfast. Co-operation will also be maintained with the centre already established by local initiative at the General Infirmary, Leeds. The task of compiling an index of the multitude of products used in the home, on the farm, in the garden, as medicines, etc., showing the constituents of each and their likely toxicity is an enormous undertaking in which, however, the voluntary co-operation of the various manufacturers has been readily forthcoming and it is anticipated that the preparatory work will be sufficiently advanced for the national centre at Guy's Hospital to begin functioning in 1963. Aided by such a treatment service for acute poisoning there is reason to hope that deaths from this cause may be reduced and that, in any event, uncertainty on the part of doctors and anxiety on the part of parents and relatives will be considerably relieved. At the same time it is an important aspect of health education that the public should be brought to appreciate the need for dangerous substances to be treated with respect and, above all, kept out of the reach of children.

(ii) "*Inherent*" Drug Toxicity. This was an item to which attention was drawn in the report for 1961. The tragic results of the use of thalidomide in pregnancy were not due to any failure to apply tests of toxicity generally accepted at the time but they have naturally given rise to a general feeling that there should be stricter control over the toxicity testing and clinical trial of all new drugs. It was with this in mind that the Standing Medical Advisory Committee set up a Joint Subcommittee on the Safety of Drugs with Lord Cohen of Birkenhead as chairman. On 2nd November, 1962, this body submitted its interim recommendations, to the effect that:—

1. The responsibility for the experimental laboratory testing of new drugs before they are used in clinical trials should remain with the individual pharmaceutical manufacturer.
2. It is neither desirable nor practicable that at this stage of their evaluation the responsibility for testing drugs should be transferred to a central authority.
3. There should be an expert body to review the evidence and offer advice on the toxicity of new drugs, whether manufactured in Great Britain or abroad, before they are used in clinical trials.

**The Sub-Committee proposed, in the light of further consultation,** to formulate detailed advice on the composition and terms of reference of this advisory body.

Before the end of the year the Minister of Health announced in Parliament that the Government had accepted the first two recommendations of the Joint Sub-Committee and would await their promised advice on the third.

Meanwhile, the Medical Research Council had appointed a special committee under the chairmanship of Sir Charles Harington "to advise and assist the Council in promoting research into the methods of testing drugs for possible toxicity" and the Association of the British Pharmaceutical Industry had also formed a committee to study similar problems.

(iii) *Chemicals in Food.* Much attention has been given to the possibility that chemicals in food which may be present either as deliberate additives or as residues of pesticides used on crops, livestock and stored products, may constitute a danger for consumers, even though the quantities concerned are usually minute. The departments mainly responsible for safeguards against risks of this kind are the Ministry of Agriculture, Fisheries and Food and the Department of Agriculture for Scotland, who invariably act so far as human health may be affected, with the knowledge and advice of the health departments.

Statutory control over deliberate food additives is being extended in this country, as it is elsewhere in the world. In deciding on the acceptability of particular compounds to be added, for instance, as colouring agents or to improve keeping properties, committees of experts take into account both animal tests for toxicity and the intended commercial usage. Moreover, a measure of international exchange and agreement is brought about by corresponding expert committees of the World Health Organisation, the Food and Agriculture Organisation, the Council of Europe and so on.

Agricultural, horticultural and food storage pesticides are now dealt with by a voluntary but comprehensive scheme by which all new compounds and formulations for controlling insect pests, weeds, etc., must be notified by the manufacturer to the Ministry of Agriculture, Fisheries and Food. Here again data on toxicity tests and details of proposed usage are carefully scrutinized with special regard to health risks before official recommendations for safe usage are issued.

Notwithstanding all these precautions suspicion persists in some quarters that in various insidious ways harm may arise from the extensive use of toxic chemicals in agriculture or animal husbandry and that the consumer is not afforded adequate protection by the controls at present exercised. One difficulty is that, scientifically speaking, an assurance of complete safety can never be given. This situation is, of course, the same as that found in many other aspects of community life such as railway travel, domestic electrical supplies, heating systems and so on. Moreover, it is always far easier to make unsubstantiated charges about possible dangers than it is to assemble the evidence necessary to refute them. In addition, however, to taking every preliminary care, as mentioned above, food sampling surveys and analyses are now being undertaken

to see in what actual amounts, if any, residues of toxic chemicals used in agriculture, etc., persist in food as sold to consumers. Furthermore, a constant watch is being kept, by health authorities and others, not only in this country but in others as well, for any evidence of damage to health from this cause. In this connection, there is particularly close and active co-operation between the health and agricultural and food departments. In conclusion, it is as well perhaps to bear in mind that by the use of pesticides and other chemicals crop yields are much increased and the total available food is much greater, also that it is by this means often kept more hygienic and acceptable to the consumer than it otherwise would be. Such benefits as these are too great to be foregone on suspicions alone, but they do not and should not obscure the need for constant vigilance.

*Reference*

Ministry of Health, 1962. *Emergency treatment in hospital of cases of acute poisoning*. (Central Health Services Council, Standing Medical Advisory Committee) London, H.M.S.O.

## XVIII

## SPECIAL SUBJECTS

## (a) Paediatric Surgery

Paediatric surgery is a relatively recent development of surgery which is assuming an increasing importance in the treatment of sick children, more especially in the neonatal period. Although children, particularly the older ones, may suffer from the adult types of surgical conditions, in the earliest days and during the first year of life it is the developmental defects that are overwhelmingly important. The recent upsurge in interest and in the scope of paediatric surgery is opportune for the following reasons. Whilst the infant mortality rate has decreased from 154/1,000 live births in 1900 to 21/1,000 in 1961 (Table I) deaths from congenital abnormalities have shown little change. With the gradual elimination of nutritional illnesses and infective diseases these abnormalities have assumed an increasing importance. The proportion of deaths from congenital anomalies has risen from 1 in 32 in 1900 to 1 in 5 in 1958 (Table II).

TABLE I

*Population and Mortality (England and Wales)*

| Year        | Total live births | Live births /1,000 population | Deaths in 1st year of life /1,000 live births | Total   |
|-------------|-------------------|-------------------------------|-----------------------------------------------|---------|
| 1900 ... .. | 927,062           | 28.7                          | 154                                           | 142,912 |
| 1961 ... .. | 811,281           | 17.6                          | 21                                            | 17,393  |

TABLE II

*Infant Mortality in England and Wales*

| Period         | Rate per 1,000 live births | Proportion attributed to congenital malformation 1 in: |
|----------------|----------------------------|--------------------------------------------------------|
| 1901-5 ... ..  | 138                        | 32                                                     |
| 1916-20 ... .. | 90                         | 22                                                     |
| 1926-30 ... .. | 68                         | 14                                                     |
| 1936-40 ... .. | 55                         | 9                                                      |
| 1946-50 ... .. | 36                         | 8                                                      |
| 1956-57 ... .. | 23                         | 5                                                      |

Since the beginning of the century deaths in the first year of life have decreased by 80 per cent. but deaths in the first month only by half.

Whilst some infants have multiple severe deformities for which surgical intervention at present can do little and in whom the mortality remains very high, many conditions are amenable to definitive operative treatment provided

it is given early enough and most of these children will be able to lead normal active lives. Some will present a continuing medico-sociological problem in spite of and in some instances because of the life saving measures performed; this is particularly so in those born with maldevelopment of the nervous system.

Progress has been made possible because of the availability of antibiotics and blood transfusion, by advances in paediatric anaesthesia, by research and by a better understanding of the physiology and pathology of the infant which differ in many respects from those of the older child and adult. Some of the most outstanding advances in the treatment of young children have been achieved by the surgical correction of deformities of the cardiovascular system, the gastro-intestinal and genito-urinary tracts and to a lesser extent those of the central nervous system which are frequently associated with hydrocephalus, permanent sensory loss and muscular paralyses.

*Malformations of the gastro-intestinal tract*, which form the third largest group of congenital anomalies, apart from congenital pyloric stenosis were almost invariably fatal until a decade ago. There has been a marked decrease in deaths from these causes between the years 1938 and 1958 mainly due to reductions in deaths from pyloric stenosis. Many of these infants are otherwise normal and early surgical intervention may result in a lasting cure.

*Atresia of the oesophagus*, probably occurs once in every 1,500 births, and was first successfully operated upon 20 years ago. The upper end of the oesophagus ends blindly and in 90 per cent. of cases the distal segment has a fistulous communication with the trachea. Early diagnosis is essential to prevent death from pulmonary complications. The operation is accomplished by division of the fistula and anastomosis of the segments of the oesophagus. Occasionally these two segments cannot be brought together; the proximal pouch is then brought out through the neck for drainage and the child is fed through a gastrostomy and at a later stage the ends of the oesophagus are joined with a graft of colon. The mortality rate remains high up to 50 per cent.; prematurity, delayed diagnosis and the presence of other anomalies being the chief contributing factors.

*Hypertrophic pyloric stenosis* occurs once in every 250 live births. Although surgical treatment has been available for 50 years it is only recently that the patients have reached the surgeon in a sufficiently good condition to minimize the hazards of operative intervention. This condition is rarely if ever associated with other abnormalities and results are excellent. The mortality rate is one per cent.

*Intestinal obstruction* embraces many conditions including atresias, annular pancreas, meconium ileus, malrotation of the gut, Hirschsprung's disease and anomalies of the rectum and anus. Only during the last few years have these malformations been tackled with any measure of success; this has been due mainly to early diagnosis, efficient gastric decompression and intravenous therapy. The mortality rate is still high particularly when the underlying abnormality persists for example in meconium ileus with fibrocystic disease. Atresias may be successfully relieved in 50 per cent. of cases. Most patients with rectal atresias survive operation though those with the high type may not develop full control of the bowel.

*Congenital heart disease* forms the second largest group of malformations. Rapid developments have taken place in heart surgery during the last few years and palliation is now giving way to definitive correction. Closure of a patent ductus arteriosus, resection of coarctation of the aorta, pulmonary valvotomy or infundibulectomy for pulmonary stenosis have been performed for a number of years. More recently with the development of the heart-lung by-pass machine and its variants prolonged operations on the open heart have become possible. This has widened the scope of cardiac surgery so that ventricular septal defects may be closed. Of all children born with congenital heart disease 60 per cent. still die within the first year of life. A proportion of these may never be suitable for surgical intervention on account of the complexity of the heart lesions or multiple lesions elsewhere. Cardiac surgery in infancy is a field in which urgent development is needed and there is much progress yet to be made.

*Malformations of the central nervous system*, including the various types of spina bifida and hydrocephalus, form the largest group of congenital anomalies. These may involve such deficiency of nervous tissue as to be incompatible with prolonged life. Though surgical procedures are possible in all but the grossest forms of abnormality, deficient nerve tissue is irreplaceable and the patient may become a socio-medical problem for life.

*Myelomeningocele* may rupture and threaten life by the development of meningitis. Excision of much of the sac without further damage to nervous tissue and a water-tight closure of the membranes may prevent sepsis and the further destruction of the existing nervous tissue. This closure is often followed by the development of hydrocephalus.

*Hydrocephalus.* The combined incidence of uncomplicated hydrocephalus and hydrocephalus associated with myelomeningocele is 4 per 1,000 live births which constitutes 75 per cent. of all cases of hydrocephalus. Early diagnosis is essential to obtain good results from surgical measures. Ventriculography reveals hydrocephalus early in infants with myelomeningocele. In other types the study of the head circumference chart in the early weeks of life may show a deviation from the normal; ventriculography is then indicated.

Many operations have been devised to relieve the intracranial pressure in this condition which, although frequently self limiting, may cause irreversible damage to the cortex of the brain in a short time. These operations have serious disadvantages and the results are often disappointing. In current operations a valve system is used to form a ventriculo-caval shunt. The cerebro-spinal fluid is drained through a plastic catheter inserted into the right lateral ventricle through a uni-directional valve into another catheter which is inserted through the jugular vein into the superior vena cava or right atrium.

The immediate surgical results are often very satisfactory but the medico-social implications may be considerable. Though the hydrocephalus may be relieved and with early treatment brain damage may be minimal the deficiencies of innervation associated with the myelomeningocele may cause permanent sensory loss and muscular paralyses of the lower part of the body and faecal and urinary incontinence. This is a field of very recent development and the prospects may prove brighter in the future.

Although the number of surgical emergencies in infancy is small, probably of the order of 2 per 1,000 live births, in each hospital region in England and Wales there will be a considerable number every year. If these infants are admitted to different hospitals throughout each region no single general surgeon will see more than a few during his career. The care of these infants is time consuming and the surgeon must have a good practical knowledge of paediatrics, skill in working in small spaces on small organs, and an interest in these anomalies and must be assisted by a team of experts. This is yet another example where team work is vital to success and close co-operation with paediatric physicians, anaesthetists, pathologists and biochemists experienced in this type of work and above all a team of trained nurses specialized in nursing these babies is essential. The overall mortality rate is high and to combat this, in some hospital regions, infants requiring surgical intervention are concentrated into special units within paediatric hospitals.

Survival depends on early recognition of the surgical emergency. Alertness on the part of general practitioners, obstetricians and paediatricians serving obstetric units has done much to bring these babies to the surgeon before deterioration has set in. The age on admission is in inverse ratio to their chances of survival. Definitive operative measures are carried out whenever possible. Though adequate surgical intervention is required for survival, this by itself is insufficient. Anaesthesia which is adequate for surgery in older patients, requires modification and special apparatus for the neonate. This has been made possible by the development of endotracheal anaesthesia using oxygen and nitrous oxide in conjunction with muscle relaxants which allows the use of diathermy and minimizes blood loss. Apart from highly skilled nursing improvements, pre- and post-operative management has probably contributed much to the survival of these infants. The use of a suitable incubator also is important especially for the premature infant and allows maintenance of an environment of constant temperature and humidity.

Infants are more readily transportable over long distances than patients of any other age and can be transferred to a suitable specialist centre. Surgery has to be faced even on the smallest baby if it would otherwise die without operative intervention. The mortality rate in premature infants is higher than in the full term baby, partly because of immaturity and partly because associated abnormalities are common.

*In conclusion* it is probable that much of the paediatric surgery is at present being carried out by general surgeons with a special interest in this field, though some special centres and departments for paediatric surgery, and particularly neonatal surgery have been established. A number of surgeons, all of whom have had an all round general surgical and paediatric training now devote their entire surgical skill to this work. The extent to which separate paediatric surgical departments have developed has previously been a matter for the surgeons themselves. All the special departments within surgery have had to demonstrate that they have something to give, over and above what can be achieved in an ordinary surgical department. The success of the small number of specialized paediatric surgical departments which now exist cannot be disputed. The concentration of cases, whose numbers are not large and whose care is costly and time consuming, provides more readily

available consultative facilities. It also allows the development of highly specialized nursing and anaesthetic techniques and permits improvement in the management of the vital pre- and post-operative periods. These advantages, particularly in relation to neonatal surgery and the complex surgery associated with maldevelopments, are becoming more widely recognized and it is probable that further departments will be established on a Regional basis.

### **(b) Some Medical Aspects of Waiting Lists**

The number of people on hospital waiting lists at the end of 1962 was 470,297. This number has shown a tendency to rise though there have been slight fluctuations since 1956 when a concerted effort resulting from HM(54)89 resulted in a reduction from the figure for 1953. The 1962 figure represents 10.08 per 1,000 population, or to put it another way, 100.6 per 100 available beds. Table II (page 207) shows the waiting list on 31st December for the years 1955-1962 together with the rate per 1,000 population, per 100 available beds and per 1,000 discharges for the same years.

It is well known that the waiting list is greater for some specialties than for others. Table III on page 207 shows the waiting list for some of the principal specialties together with the number on the waiting list per 100 beds and the mean waiting time in weeks.\*

Apart from the assumptions involved in the calculations this last figure should be used with care for several reasons. Firstly it is an average which does not take separate account of the urgent and non-urgent cases and secondly there is some doubt of the actual number of people on a waiting list who would not come into hospital when sent for; some studies suggest that this factor might inflate the list by as much as 10 per cent. At the same time the mean waiting time is a measure which takes into account both the number of beds available and the average duration of stay and thus yields slightly more information in a single figure.

The overall picture in the health service is that there is approximately one person waiting for every bed and yet, not counting emergency admissions, the average waiting time is approximately three months. This apparent paradox is explained by the large proportion of emergency admissions, by the overall picture being weighted considerably by the long waiting time for mental subnormality hospitals where the turnover is so slow and by the large proportion of the list being concentrated in a few specialties. A better picture is gained by examining data for these individual specialties as given in Table II.

As might be expected the waiting time for medical departments is shorter than most, and it is possible that even this is overstated. The reason for this is that, as explained in the footnote this calculation depends on the

\* This calculation is a very approximate one. Using data from the Hospital In-Patient Enquiry for 1959 the percentage of waiting list admissions for each department was extracted. These percentages were then applied to the number of discharges and deaths in 1962 to estimate the number of such discharges and deaths during the year an estimate is obtained of the mean waiting time. This depends on the assumption that the duration of stay is the same in both waiting list and other cases.

assumption that the length of stay of an emergency admission is the same as for other cases. Whilst this is generally true for surgical and possibly for geriatric cases it is unlikely to hold for medical departments where waiting list admissions are often cases requiring only investigation and hence a relatively short stay. This will have the effect of overestimation of the calculated mean waiting time.

Geriatric and chronic sick cases wait for an average of about two months, but many of the cases on these waiting lists become urgent because of sudden deterioration and are admitted as emergencies.

It is in the surgical departments that the real problem exists and also probably the figures are most meaningful. The department with the longest waiting time is that for plastic surgery where the average wait is as long as nine months but some of this may still result from planned admission for elective surgery at a remote date. Many of the other surgical departments keep patients waiting for five or six months before admission. The only "surgical" department with a short waiting time is radiotherapy where, of course, the nature of the work is such that urgency is essential.

Regional data for the relevant specialties are shown in Table IV (p. 208). There are large variations in the overall position with the longest waiting lists per bed being seen in Manchester and Sheffield and the shortest in Liverpool, South-West Metropolitan and Leeds regions. These figures may be affected by the large number of beds for mental illness in the South-West Metropolitan Region.

Teaching hospitals generally have apparently longer waiting lists, but this is explained by the different departmental distribution of beds. For individual departments the waiting lists, although on the long side are not greatly different from the regional figures except for all medical departments where the nature of the work is rather different.

Regional figures for individual departments show very large variations particularly in the more specialized fields. For example, in Thoracic Surgery there is virtually no waiting list in Liverpool and a very long one in the neighbouring Manchester region. For plastic surgery the Birmingham waiting list is four times as long as that in the North-East Metropolitan region, which may, however, receive service from elsewhere. For the numerically important specialties of surgery, E.N.T. and gynaecology, there are again wide variations with Liverpool region in the most favourable position.

Data from the Hospital In-Patient Enquiry show the median and mean waiting times for individual diagnoses; it should be noted, however, that these are the waiting times for cases admitted. Although the mean waiting time of those admitted should not differ by much from the mean waiting time of those on the list it should be remembered that the latter is a calculated figure, whereas the former is an actual one. The difference between the mean and the median waiting time is explained by the distribution of cases, with a large number having to wait a very long time for admission.

TABLE I

*Mean and Median waiting times for common surgical conditions 1961*

| Condition                                                            | Median waiting time (weeks) |      | Mean waiting time (weeks) of cases admitted |      | Relevant Department | Calculated mean waiting time (weeks) of cases on list |
|----------------------------------------------------------------------|-----------------------------|------|---------------------------------------------|------|---------------------|-------------------------------------------------------|
|                                                                      | M                           | F    | M                                           | F    |                     |                                                       |
| Strabismus ... ..                                                    | 10.4                        | 11.7 | 17.6                                        | 18.3 | Ophthalmology       | 21.2                                                  |
| Hypertrophy of tonsils and adenoids with mention of operation ... .. | 11.3                        | 11.2 | 18.0                                        | 18.1 | E.N.T. ...          | 22.3                                                  |
| Hernia of abdominal Cavity ... ..                                    | 7.3                         | 6.8  | 15.1                                        | 13.2 | Surgery ...         | 19.8                                                  |
| Hyperplasia of prostate ... ..                                       | 4.3                         | —    | 9.2                                         | —    | Surgery ...         | 19.8                                                  |
| Prolapse of Uterus...                                                | —                           | 8.9  | —                                           | 16.4 | Gynaecology         | 16.4                                                  |

Although the conditions shown in Table I are mostly those where urgent admission is not essential they do give some indication of the long time that some people wait. At the same time, however, the system of speedy admission for the urgent case does seem to be attained. The median waiting time for cancer cases is less than one week for neoplasms of lung and 1.3 and 1.6 weeks for neoplasms of the breast and uterus respectively. The median waiting time for cases of respiratory tuberculosis is also less than one week, as would be expected with the reduced demand for admission to sanatoria.

#### *The Nature of the Waiting List*

It is worth considering in slightly more detail what conclusions one can draw from a study of waiting list data—referring particularly to the non-urgent case. There is general belief that a long waiting list necessarily indicates a shortage of beds. For reasons given below this might be true, but it cannot be deduced from the waiting list figures alone. The reason for this is quite simply that if there are as many people on the list at the end of a period as at the beginning then it follows that the supply of hospital beds is just meeting the demand made by the arrival of fresh cases. It is only if the waiting list is steadily increasing that one has any justification for deducing that there is a shortage of beds from waiting list data alone. Thus a long, but steady waiting list is an indication only of a backlog of work remaining from the past.

It seems probable however that in most circumstances the length of a waiting list is "self-regulating". It seems likely that in any local situation when a waiting list increases above a locally accepted but ill-defined "norm" that pressures begin to operate which tend to bring it back to that norm. These pressures are divisible into two depending on the end of the waiting list at which they work.

The more obvious factors working to reduce a waiting list operate at the hospital end. These include:

- (a) The "borrowing" of beds from other specialties or consultants either temporarily or permanently.
- (b) The appointment of an extra consultant or other medical staff.
- (c) The conscious or unconscious attempt by all staff to reduce the duration of stay of patients, and to increase the occupancy of beds.

More subtle factors work at the other end of a waiting list. Whether patients are put on this list depends primarily on the morbidity in a community but factors possibly play an important part. The general practitioners will not send patients for consultation where they know that there is little hope of admission and may often arrange for patients to be treated at home or elsewhere i.e. in another hospital as an alternative and possibly second best solution. When a waiting list becomes excessively long the consultant will tend to discourage patients from joining it where admission is not absolutely necessary. Even the patient will react by having a long time to reconsider the need for admission before the letter calling him in arrives.

With so many factors operating it becomes extremely difficult to judge the growth or reduction in the absolute need by changes in waiting list figures. *A small increase in facilities can reduce a waiting list quickly.* It is nonetheless highly desirable that attempts should be made to reduce the length of waiting lists. Steps should be taken to ensure that they are genuine and suggestions for their review were given in HM(62)45. It is often not realized how quickly a waiting list can be reduced by a relatively small increase in the services provided. The example given below demonstrates this. It relates to a hypothetical surgical department in a small acute hospital.

|                                                              |         |
|--------------------------------------------------------------|---------|
| (a) Average number of available surgical beds ... ..         | 50      |
| (b) Average duration of stay ... ..                          | 12 days |
| (c) Turnover interval ... ..                                 | 2 days  |
| (d) From line (b) and (c) number of cases per bed per        |         |
| year $\left( \frac{365}{12+2} \right)$ ... ..                | 26      |
| (e) Total number of discharges per year $(26 \times 50)$ ... | 1,300   |
| (f) Waiting list (assumed to be constant) ... ..             | 300     |

If it is possible to reduce the average turnover interval by half a day and the average duration of stay by half a day, instead of 26 cases per bed per year it will be possible to admit over 28 cases per bed per year. Assuming that patients continue to join the waiting list at the same rate the whole list would be wiped out in three years. Similar reductions can be made by the addition of only one or two beds and no change in duration of stay or turnover interval. In either case there may be need for more staff time, but in the former new building for beds will be unnecessary.

It is pointed out above that the self-regulating property of waiting lists makes the assumption that people would continue to join the waiting list at the same rate an unlikely one. Further it is realized that if an organization is already stretched to its limit the reduction of a day per case may be extremely difficult to achieve.

Nevertheless, these difficulties can often be overcome and preparations were made during the year, in consultation with hospital authorities and the Joint Consultants Committee for special action which has since been launched.

**TABLE II**  
*Hospital Waiting Lists 1955-1962*

|                                             | 1955    | 1956    | 1957    | 1958    | 1959    | 1960    | 1961    | 1962    |
|---------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Number on waiting list 31st December ... .. | 454,864 | 430,795 | 439,768 | 442,838 | 475,643 | 465,540 | 474,353 | 470,297 |
| Waiting list per 1,000 population ...       | 10.24   | 9.64    | 9.79    | 9.82    | 10.48   | 10.17   | 10.27   | 10.08   |
| Waiting list per 100 beds ... ..            | 95.4    | 90.3    | 92.2    | 92.7    | 99.9    | 98.1    | 101.0   | 100.6   |
| Waiting list per 1,000 discharges ...       | 124.55  | 115.21  | 115.92  | 113.86  | 118.90  | 112.56  | 111.12  | 107.10  |

**TABLE III**  
*Number on Waiting List, number waiting per 100 available beds and calculated average waiting time at 31st December, 1962, for certain specialties.*

| Department                        | Number on waiting list<br>31st December,<br>1962 | Number on waiting list<br>per 100<br>available beds | Mean<br>waiting time<br>(weeks) |
|-----------------------------------|--------------------------------------------------|-----------------------------------------------------|---------------------------------|
| All departments ... ..            | 470,297                                          | 100.6                                               | 11.42                           |
| All medical (total) ... ..        | 12,097                                           | 17.5                                                | 4.04                            |
| Geriatric and Chronic Sick ... .. | 8,078                                            | 14.1                                                | 8.16                            |
| All Surgical (total) ... ..       | 367,762                                          | 517.6                                               | 20.09                           |
| General Surgery ... ..            | 149,819                                          | 447.0                                               | 18.94                           |
| E.N.T. (T. and A.) ... ..         | 66,087                                           | 1,302.5                                             | 21.48                           |
| E.N.T. other ... ..               | 34,920                                           |                                                     |                                 |
| Trau. and Orth. Surgery ... ..    | 51,930                                           | 294.3                                               | 25.49                           |
| Ophthalmology ... ..              | 27,984                                           | 644.0                                               | 21.04                           |
| Radiotherapy ... ..               | 926                                              | 48.2                                                | 2.17                            |
| Urology ... ..                    | 5,068                                            | 376.2                                               | 13.64                           |
| Plastic Surgery ... ..            | 17,607                                           | 1,032.3                                             | 39.34                           |
| Thoracic Surgery ... ..           | 3,066                                            | 129.2                                               | 9.13                            |
| Dentistry ... ..                  | 7,666                                            | 1,711.2                                             | 15.33                           |
| Neurosurgery ... ..               | 2,689                                            | 261.5                                               | 20.58                           |
| Gynaecology ... ..                | 63,128                                           | 660.4                                               | 15.74                           |

TABLE IV

Waiting List per Average Daily 100 Available Beds, 31st December, 1962

|                                  | All Departments | All Medical (Total) | All Surgical (Total) | General Surgery | E.N.T.  | Tru. and Orth. Surgery | Ophthalmology | Radiotherapy | Plastic Surgery | Thoracic Surgery | Neurosurgery | Gynaecology |
|----------------------------------|-----------------|---------------------|----------------------|-----------------|---------|------------------------|---------------|--------------|-----------------|------------------|--------------|-------------|
| <b>REGIONAL HOSPITAL BOARDS:</b> |                 |                     |                      |                 |         |                        |               |              |                 |                  |              |             |
| Newcastle ...                    | 92.9            | 13.4                | 400.1                | 361.2           | 895.9   | 278.0                  | 441.5         | 8.2          | 722.1           | 45.9             | 474.2        | 694.2       |
| Leeds ...                        | 54.7            | 6.4                 | 332.6                | 220.1           | 1,249.8 | 201.4                  | 500.0         | 57.5         | 930.1           | 78.8             | 32.8         | 383.5       |
| Sheffield ...                    | 122.5           | 18.7                | 691.1                | 677.8           | 2,012.2 | 330.8                  | 896.3         | 15.1         | 1,252.2         | 55.4             | 134.1        | 900.6       |
| East Anglia ...                  | 90.5            | 13.3                | 639.2                | 481.7           | 1,076.7 | 710.1                  | 1,446.3       | —            | 1,712.9         | 88.5             | —            | 968.3       |
| N.W. Met. ...                    | 85.0            | 10.8                | 318.6                | 308.2           | 2,114.9 | 400.9                  | 811.0         | 15.1         | 757.4           | 39.8             | 196.3        | 356.8       |
| N.E. Met. ...                    | 76.4            | 3.5                 | 400.5                | 280.5           | 1,745.3 | 258.3                  | 433.8         | —            | 580.0           | 60.0             | 207.1        | 454.4       |
| S.E. Met. ...                    | 88.0            | 6.0                 | 451.6                | 432.7           | 902.4   | 256.7                  | 530.0         | 31.8         | 1,381.4         | 33.6             | 182.8        | 577.5       |
| S.W. Met. ...                    | 55.1            | 7.4                 | 435.7                | 360.1           | 1,714.5 | 273.8                  | 428.0         | 76.4         | —               | 36.8             | —            | 664.1       |
| Oxford ...                       | 107.1           | 7.4                 | 645.4                | 723.8           | 1,720.0 | 268.1                  | 1,284.3       | 14.3         | 328.8           | —                | —            | 733.4       |
| South Western ...                | 88.6            | 10.6                | 600.6                | 716.3           | 1,427.0 | 243.9                  | 426.0         | 34.8         | 1,500.9         | 78.6             | 140.4        | 850.6       |
| Wales ...                        | 72.0            | 15.4                | 315.8                | 273.0           | 939.6   | 126.7                  | 602.0         | 48.6         | 338.0           | 37.6             | 191.7        | 553.3       |
| Birmingham ...                   | 100.8           | 10.7                | 567.1                | 488.1           | 2,177.1 | 163.6                  | 620.1         | 56.1         | 2,321.5         | 166.4            | 279.1        | 940.5       |
| Manchester ...                   | 128.9           | 14.3                | 712.5                | 625.2           | 2,185.0 | 425.6                  | 563.3         | 65.7         | 719.6           | 322.6            | 386.4        | 758.5       |
| Liverpool ...                    | 55.1            | 3.4                 | 285.8                | 224.9           | 879.2   | 230.3                  | 666.4         | 9.1          | 753.0           | 13.6             | 50.6         | 351.7       |
| Wessex ...                       | 86.8            | 9.0                 | 469.3                | 375.7           | 1,379.4 | 212.6                  | 894.7         | 77.9         | 796.2           | 188.6            | —            | 585.5       |
| <b>BOARDS OF GOVERNORS:</b>      |                 |                     |                      |                 |         |                        |               |              |                 |                  |              |             |
| London Under-graduate ...        | 256.6           | 58.2                | 534.7                | 435.6           | 1,024.1 | 613.5                  | 417.9         | 36.2         | 1,038.3         | 347.5            | 100.0        | 588.6       |
| London Post-graduate ...         | 235.2           | 40.8                | 471.0                | 717.6           | 819.7   | 260.3                  | 539.2         | 36.1         | 1,179.3         | 138.3            | 302.6        | 157.9       |
| Provincial ...                   | 406.1           | 94.2                | 784.8                | 668.2           | 1,749.3 | 505.1                  | 838.4         | 144.2        | 1,825.6         | 547.5            | 453.3        | 814.4       |

## (c) Postgraduate Medical Education

The Report of the Inter-Departmental Committee on Medical Schools (Goodenough), 1944, referred to the two broad problems of postgraduate medical education, namely (i) facilities for postgraduate education and experience required by medical practitioners desiring to become specialists, and (ii) other forms of postgraduate education, including refresher courses for general practitioners. It excluded, as will be excluded here, the pre-registration period which can be looked on as a rounding off and the final phase of the basic medical education rather than the opening phase of postgraduate training and experience. In a similar way Dr. J. R. Ellis has referred recently to three aspects of training after graduation (i) Graduate education, i.e. in the pre-registration year; (ii) Preparatory education, i.e. preparation for the fully registered doctor for his life work—specialism, general practice, public health, etc.; (iii) Continuing education—both refresher courses for general practitioners and others and the continuous provision for learning throughout professional life.

The Goodenough Report commented that, at that time, the provision for postgraduate medical education in Great Britain was lacking in adequacy and completeness and that proper provision had not been made either for practitioners working in this country or those from overseas. In addition it stated that a nation embarking upon a comprehensive health service cannot afford to do so without a comprehensive system of postgraduate medical education with the system providing for the differing needs of various types of practitioner.

Since the inception of the National Health Service two facets of post-graduate medical training have been predominant (i) training for consultant posts in the various specialties, and (ii) refresher courses for general practitioners.

As far as training for consultant work is concerned, there was initially a progressive ladder of posts in training grades, in National Health Service hospitals, as envisaged by the Spens Committee; the three training grades were junior registrar, registrar and senior registrar. However, the National Health Service had not been in existence long before the concept of the grades between house officer and senior registrar existing primarily for training future consultants was seen to be wrong and in 1950 the junior registrar grade, renamed senior house officer, ceased to be looked upon as primarily a training grade, and in the following year the registrar grade followed suit. The senior registrar grade remained, primarily dedicated to training and in the sense that the size of the grade in the various specialties must be controlled and related to future needs at consultant level. It was found in 1951 that the size of this training grade could not be related satisfactorily to likely vacancies without control from the Central Health Departments and since that time the Senior Registrar Training Plan has been reviewed regularly, specialty by specialty, to relate the numbers in training to anticipated demands at consultant level, taking into account the rise and fall of the various disciplines. It was unfortunate that in the earlier days, before this control was established, an excessive number of senior registrar posts had been established, notably in general medicine, general surgery and obstetrics and gynaecology, resulting in the position of having too many fully trained senior registrars with no consultant vacancies open to them—the so-called "Senior Registrar Bulge"—which has continued to colour thinking and opinion on this matter. In certain specialties in which there has been very considerable expansion, e.g. psychiatry and anaesthetics, limiting factors have been the difficulty in finding either a sufficient number of units in which adequate postgraduate training at senior registrar level can be undergone, and a sufficient number of candidates of the right quality for training. Despite such difficulties as these, however, this traditional method of training to consultant level has been well-proved.

Refresher courses for general practitioners have always been a feature of the National Health Service, arrangements being made, under Section 48 of the National Health Service Act, 1946, with the Universities and through their medical schools and the British Postgraduate Federation for three kinds of courses, (i) intensive courses of a week or a fortnight; (ii) shorter intensive courses often arranged at weekends, and (iii) extended courses with sessions spread over a number of weeks or months. Payments are made towards the cost of provision of the courses and the expenses of doctors attending them. Attendance at these courses has risen steadily since 1948, a wide variety of subjects are covered and in some instances individual tuition, by attachment to hospital units, has been possible. Mention must be made of the fact that during 1962 the medical profession and the Minister agreed to accept recommendations for establishing a post-graduate education fund from which special payments would be made to general practitioners who, within a five-year period, attend a minimum number of sessions at

approved refresher courses—from this one can expect a still greater demand for this type of postgraduate work.

The general experience gained by junior medical staff in the National Health Service hospitals has been developed, in a patchy way, by the interest of the individual consultant or the body of consultants of each hospital concerned, but has not generally been systematically organized. The extent of additional training has varied from little or nothing beyond simple apprenticeship to laudable schemes of "grand rounds", clinical conferences, opportunities to attend other units, good library provision, and the like.

Brief mention must be made of the part that has been played in providing facilities for post-graduate education by individual medical schools, the British Postgraduate Medical Federation, the Royal Colleges, the College of General Practitioners, professional associations, and others.

Additional interest was stimulated in the general subject of postgraduate medical education by the Nuffield Provincial Hospitals Trust's conference mentioned last year. Following publication of a short report of the conference the Nuffield Provincial Hospitals Trust made available a sum of £250,000 to promote developments along the lines envisaged by the conference. This generous support was soon committed and has been extended since.

On the recommendation of the Oxford Conference a further Conference was convened at the Ministry of Health early in 1962 to discuss the principles and policy which should govern the provision of postgraduate education in Regional Board Hospitals. In the context of the discussions postgraduate education was taken to include not only formal academic training of the kind provided by universities, but also the kind of "on the job" training which would enable medical staff to keep abreast of developments in medical knowledge and techniques. This training could proceed by way of effective supervision by seniors of the work done by their juniors—explanation, discussion, criticism—and, on a wider plane, participation in regular clinicopathological conferences, post-mortem demonstrations and grand ward rounds by both senior and junior staff. Planning of the sequence of junior posts would be required as well as the provision of rotating internships covering several specialties. Arrangements would also be needed to assist general practitioners to continue study.

This conference agreed that the development of postgraduate medical education in Regional Board hospitals was essential and that Boards should be encouraged to seek the Nuffield Trust's support for schemes of postgraduate education in their areas; the experience gained thereby would help to determine the most fruitful and economic lines of future development.

Without prejudice to any experiments which were to be undertaken, a working pattern for the organization of post-graduate training was suggested with at regional level the post-graduate dean appointed by the University and at the group or hospital level clinical tutors from the local staff. In addition there should be a regional post-graduate committee composed of representatives of the University, the under-graduate dean(s), the Royal Colleges, the College of General Practitioners, the Regional Hospital Board and the postgraduate dean.

Postgraduate Deans have been in existence in some Regions since 1950, and in most Regions postgraduate committees are well established, these arrangements arising from Section 48 schemes, but developments based on the suggestions above have already been set in motion by Regional Hospital Boards, in consultation with the Universities and in addition there are proposals for the improvement of medical libraries and the alteration and improvement of rooms for lectures and Staff Conferences. The coming year should see positive results from these experimental developments.

As is well known a considerable number of junior medical posts in National Health Service hospitals are held by graduates from overseas. Many fit easily into our hospital life and will benefit from the postgraduate opportunities mentioned above; others, however, find difficulty in that their undergraduate training may not have been comparable to that of the British schools; they may be unfamiliar with the National Health Service, the British social system or way of life, or they may have trouble with the language. For these doctors it has been suggested that units should be established for their assessment and training to eliminate their difficulties and ensure that they and the health service benefit from their stay in this country. The future of this proposal is less clear but experimental schemes are in hand and their value too will be able to be assessed in the future.

# APPENDIX A

## TABLES OF VITAL STATISTICS: ENGLAND AND WALES

### I

#### *Population of England and Wales (in thousands) 1801-1962*

| Year        | Males  | Females | Persons |
|-------------|--------|---------|---------|
| 1801 ... .. | 4,255  | 4,638   | 8,893   |
| 1851 ... .. | 8,781  | 9,146   | 17,928  |
| 1901 ... .. | 15,729 | 16,799  | 32,528  |
| 1911 ... .. | 17,446 | 18,625  | 36,070  |
| 1921 ... .. | 18,075 | 19,811  | 37,887  |
| 1931 ... .. | 19,133 | 20,819  | 39,952  |
| 1941 ... .. | 20,141 | 21,607  | 41,748  |
| 1951 ... .. | 21,044 | 22,771  | 43,815  |
| 1956 ... .. | 21,517 | 23,150  | 44,667  |
| 1957 ... .. | 21,648 | 23,259  | 44,907  |
| 1958 ... .. | 21,744 | 23,365  | 45,109  |
| 1959 ... .. | 21,885 | 23,501  | 45,386  |
| 1960 ... .. | 22,070 | 23,685  | 45,755  |
| 1961 ... .. | 22,346 | 23,820  | 46,166  |
| 1962 ... .. | 22,651 | 24,018  | 46,669  |

*Note:* 1801-1931—Census enumerated population.

1941—Estimated mid-year total population (i.e., including all members of H.M. Forces belonging to England and Wales, but excluding the Forces of other countries temporarily in England and Wales).

1951-1962—Estimated mid-year home population (i.e., including members of H.M. Forces and other armed forces stationed in England and Wales).

### II

#### *England and Wales: Births and Stillbirths, Deaths and Deaths of Infants, 1936-1962*

| Year        | Births          |                       |                                                         | Deaths          |                       | Infant Mortality Rate per 1,000 live births | Neonatal Mortality Rate per 1,000 live births |
|-------------|-----------------|-----------------------|---------------------------------------------------------|-----------------|-----------------------|---------------------------------------------|-----------------------------------------------|
|             | Live Births     |                       | Stillbirth Rate per 1,000 total births (live and still) | Number annually | Rate per 1,000 living |                                             |                                               |
|             | Number annually | Rate per 1,000 living |                                                         |                 |                       |                                             |                                               |
| 1936-40 ... | 608,330         | 14.7                  | 38.5                                                    | 513,155         | 12.5                  | 55.3                                        | 29.2                                          |
| 1941-45 ... | 669,269         | 15.9                  | 30.5                                                    | 499,403         | 12.8                  | 49.8                                        | 26.0                                          |
| 1946-50 ... | 780,933         | 18.0                  | 24.0                                                    | 500,128         | 11.8                  | 36.4                                        | 21.1                                          |
| 1951-55 ... | 675,420         | 15.3                  | 23.0                                                    | 514,231         | 11.7                  | 26.9                                        | 18.0                                          |
| 1956 ...    | 700,335         | 15.7                  | 22.9                                                    | 521,331         | 11.7                  | 23.7                                        | 16.8                                          |
| 1957 ...    | 723,381         | 16.1                  | 22.5                                                    | 514,870         | 11.5                  | 23.1                                        | 16.5                                          |
| 1958 ...    | 740,715         | 16.4                  | 21.5                                                    | 526,843         | 11.7                  | 22.5                                        | 16.2                                          |
| 1959 ...    | 748,501         | 16.5                  | 20.8                                                    | 527,651         | 11.6                  | 22.2                                        | 15.9                                          |
| 1960 ...    | 785,005         | 17.2                  | 19.8                                                    | 526,268         | 11.5                  | 21.8                                        | 15.5                                          |
| 1961 ...    | 811,281         | 17.6                  | 19.0                                                    | 551,752         | 12.0                  | 21.4                                        | 15.3                                          |
| 1962 ...    | 838,736         | 18.0                  | 18.1                                                    | 557,636         | 11.9                  | 21.7                                        | 15.1                                          |

*Note:*—Births prior to 1939 are numbers registered and for 1939 and later are occurrences in the period.

Live Birth Rates for 1939-49 are based on total population, i.e., including armed forces and mercantile marine at home and abroad. For all other years they are based on home population.

Deaths include those of non-civilians registered in England and Wales.

Death rates are for civilians only from 1939 (for males) or 1941 (for females) until the end of 1949. For all other years they are based on home population.

Infant mortality and neonatal mortality is based on related births prior to 1957.

## III

*England and Wales: Deaths from all causes and Death Rates per 1,000 Living**Males*

|                   | Death Rates |       |       | Number of Deaths |
|-------------------|-------------|-------|-------|------------------|
|                   | 1960        | 1961  | 1962  | 1962             |
| Under 1 year* ... | 24.5        | 23.9  | 24.5  | 10,573           |
| 1- ...            | 0.95        | 1.04  | 0.94  | 1,435            |
| 5- ...            | 0.53        | 0.48  | 0.44  | 753              |
| 10- ...           | 0.38        | 0.40  | 0.43  | 759              |
| 15- ...           | 0.91        | 0.93  | 0.92  | 1,648            |
| 20- ...           | 1.17        | 1.10  | 1.10  | 1,614            |
| 25- ...           | 1.12        | 1.15  | 1.07  | 3,184            |
| 35- ...           | 2.41        | 2.42  | 2.40  | 7,588            |
| 45- ...           | 7.17        | 7.25  | 7.25  | 22,708           |
| 55- ...           | 21.4        | 22.0  | 22.2  | 56,957           |
| 65- ...           | 52.5        | 54.3  | 54.3  | 79,139           |
| 75- ...           | 119.6       | 124.0 | 123.9 | 74,201           |
| 85 and over ...   | 232         | 257   | 267   | 24,395           |
| All ages ...      | 12.2        | 12.6  | 12.6  | 285,154          |

*Females*

|                   | Death Rates |      |      | Number of Deaths |
|-------------------|-------------|------|------|------------------|
|                   | 1960        | 1961 | 1962 | 1962             |
| Under 1 year* ... | 18.9        | 18.8 | 18.7 | 7,614            |
| 1- ...            | 0.78        | 0.80 | 0.77 | 1,115            |
| 5- ...            | 0.34        | 0.33 | 0.32 | 518              |
| 10- ...           | 0.26        | 0.25 | 0.25 | 424              |
| 15- ...           | 0.36        | 0.39 | 0.36 | 609              |
| 20- ...           | 0.44        | 0.52 | 0.49 | 711              |
| 25- ...           | 0.73        | 0.73 | 0.76 | 2,193            |
| 35- ...           | 1.73        | 1.76 | 1.78 | 5,651            |
| 45- ...           | 4.35        | 4.45 | 4.39 | 14,226           |
| 55- ...           | 10.6        | 10.7 | 10.8 | 31,714           |
| 65- ...           | 29.5        | 30.9 | 30.1 | 64,297           |
| 75- ...           | 84.4        | 87.1 | 86.2 | 95,319           |
| 85 and over ...   | 210         | 227  | 227  | 48,091           |
| All ages... ..    | 10.9        | 11.4 | 11.3 | 272,482          |

\* Per thousand live births.

## IV

*England and Wales: Deaths from Principal Causes*

| ICD No.  | Cause of death                                          | 1957    | 1958    | 1959    | 1960    | 1961    | 1962    |
|----------|---------------------------------------------------------|---------|---------|---------|---------|---------|---------|
| 001-8    | Tuberculosis, respiratory ...                           | 4,249   | 3,999   | 3,474   | 3,105   | 3,002   | 2,714   |
| 010-9    | Tuberculosis, other forms ...                           | 535     | 481     | 380     | 330     | 332     | 314     |
| 020-9    | Syphilis ... ..                                         | 1,072   | 1,041   | 958     | 944     | 900     | 822     |
| 055      | Diphtheria ... ..                                       | 4       | 8       | —       | 5       | 10      | 2       |
| 056      | Whooping cough ... ..                                   | 87      | 27      | 25      | 37      | 27      | 24      |
| 057      | Meningococcal infections ...                            | 184     | 145     | 159     | 95      | 130     | 138     |
| 080      | Acute poliomyelitis ... ..                              | 226     | 129     | 66      | 23      | 59      | 18      |
| 085      | Measles ... ..                                          | 94      | 49      | 98      | 31      | 152     | 39      |
| Rdr.     | Other infective diseases ...                            | 1,026   | 981     | 973     | 1,060   | 1,027   | 1,040   |
| 001-138  |                                                         |         |         |         |         |         |         |
|          | Malignant neoplasm:                                     |         |         |         |         |         |         |
| 151      | Stomach ... ..                                          | 13,917  | 14,112  | 14,076  | 13,953  | 13,788  | 13,596  |
| 162-3    | Lung and bronchus ... ..                                | 19,028  | 19,820  | 21,063  | 22,000  | 22,810  | 23,779  |
| 170      | Breast ... ..                                           | 8,622   | 9,022   | 8,770   | 9,122   | 9,367   | 9,430   |
| 171-4    | Uterus ... ..                                           | 3,912   | 4,115   | 4,003   | 4,088   | 3,981   | 4,015   |
| 204      | Leukaemia and aleukaemia ...                            | 2,394   | 2,386   | 2,534   | 2,694   | 2,645   | 2,707   |
| Rdr.     | Other malignant neoplasms                               | 46,144  | 46,349  | 46,671  | 46,931  | 47,324  | 48,081  |
| 140-203, |                                                         |         |         |         |         |         |         |
| 205      |                                                         |         |         |         |         |         |         |
| 260      | Diabetes ... ..                                         | 3,137   | 3,315   | 3,193   | 3,559   | 3,869   | 3,811   |
| 330-4    | Vascular lesions of central nervous system ... ..       | 73,669  | 76,177  | 75,150  | 76,222  | 77,023  | 78,297  |
| 420      | Coronary artery and arterio-sclerotic heart disease ... | 77,176  | 84,041  | 84,922  | 91,961  | 95,775  | 102,478 |
| 440-3    | Hypertensive heart disease ...                          | 12,592  | 12,283  | 11,375  | 11,294  | 11,225  | 10,351  |
| 410-6,   | Other heart disease ... ..                              | 76,228  | 77,395  | 71,837  | 70,916  | 72,365  | 70,047  |
| 421-34   |                                                         |         |         |         |         |         |         |
| 444-68   | Other circulatory disease ...                           | 22,180  | 23,795  | 23,572  | 24,267  | 25,290  | 25,161  |
| 480-3    | Influenza ... ..                                        | 6,716   | 2,401   | 7,862   | 1,098   | 7,102   | 3,308   |
| 490-3,   | Pneumonia at all ages ... ..                            | 23,562  | 24,575  | 27,340  | 25,075  | 29,979  | 31,672  |
| 763      |                                                         |         |         |         |         |         |         |
| 500-2    | Bronchitis ... ..                                       | 27,097  | 29,396  | 29,051  | 26,485  | 31,363  | 33,293  |
| 470-5,   | Other respiratory disease ...                           | 5,344   | 5,273   | 5,049   | 5,029   | 5,364   | 5,284   |
| 510-27   |                                                         |         |         |         |         |         |         |
| 540-1    | Ulcer of stomach and duodenum ... ..                    | 5,029   | 4,898   | 4,563   | 4,705   | 4,405   | 4,692   |
| 543,     | Gastritis, enteritis and diarrhoea of newborn ... ..    | 2,288   | 2,375   | 2,376   | 2,542   | 2,645   | 2,619   |
| 571-2,   |                                                         |         |         |         |         |         |         |
| 764      |                                                         |         |         |         |         |         |         |
| 590-4    | Nephritis and nephrosis ...                             | 4,195   | 4,078   | 3,685   | 3,714   | 3,498   | 3,423   |
| 610      | Hyperplasia of prostate ...                             | 3,645   | 3,577   | 3,505   | 3,259   | 3,075   | 2,901   |
| 640-89   | Pregnancy, abortion and childbirth ... ..               | 333     | 328     | 290     | 310     | 274     | 299     |
| 750-9    | Congenital malformations ...                            | 4,930   | 4,890   | 4,911   | 5,122   | 5,196   | 5,626   |
|          | Other causes not specified in this table ... ..         | 43,694  | 42,926  | 42,885  | 43,170  | 44,436  | 43,718  |
| E810-35  | Motor vehicle accidents ...                             | 4,898   | 5,439   | 6,026   | 6,643   | 6,634   | 6,306   |
| E800-2,  | All other accidents ... ..                              | 11,000  | 11,438  | 11,278  | 11,077  | 11,173  | 11,693  |
| E840-    |                                                         |         |         |         |         |         |         |
| E962     |                                                         |         |         |         |         |         |         |
| E963,    | Suicide ... ..                                          | 5,316   | 5,298   | 5,207   | 5,113   | 5,201   | 5,589   |
| E970-9   |                                                         |         |         |         |         |         |         |
| E964-5,  | Homicide and operations of war ... ..                   | 347     | 281     | 324     | 289     | 306     | 309     |
| E980-99  |                                                         |         |         |         |         |         |         |
|          | All causes ... ..                                       | 514,870 | 526,843 | 527,651 | 526,268 | 551,752 | 557,636 |

## England and Wales: Mortality from Principal Infective Diseases, 1940-1962

| ICD No.      | Disease                                            | Number of deaths |          |          |          |       |       |       |
|--------------|----------------------------------------------------|------------------|----------|----------|----------|-------|-------|-------|
|              |                                                    | 1940-44*         | 1945-49* | 1950-54* | 1955-59* | 1960  | 1961  | 1962  |
| 055          | Diphtheria ... ..                                  | 1,830            | 326      | 26       | 5        | 5     | 10    | 2     |
| 045-048      | Dysentery ... ..                                   | 198              | 54       | 50       | 32       | 36    | 34    | 28    |
| 571, 764     | Gastro-enteritis ... ..                            | 4,181            | 4,037    | 1,307    | 805      | 867   | 945   | 994   |
| 480-483      | Influenza ... ..                                   | 7,624            | 3,615    | 5,947    | 4,318    | 1,088 | 7,102 | 3,308 |
| 085          | Measles ... ..                                     | 693              | 442      | 153      | 89       | 31    | 182   | 39    |
| 057          | Meningococcal infections ... ..                    | 1,397            | 424      | 284      | 176      | 95    | 130   | 138   |
| 080, 081     | Acute poliomyelitis, including late effects ... .. | 124              | 364      | 348      | 181      | 46    | 79    | 45    |
| 651, 680-684 | Post-abortive and puerperal sepsis ... ..          | 499              | 237      | 115      | 84       | 68    | 60    | 71    |
| 050          | Scarlet fever ... ..                               | 123              | 46       | 13       | 2        | —     | 3     | 2     |
| 084          | Smallpox ... ..                                    | 1                | 6        | 4        | 1        | —     | —     | 26    |
| 001, 008     | Tuberculosis, respiratory ... ..                   | 21,637           | 18,940   | 10,085   | 4,482    | 3,105 | 3,002 | 2,774 |
| 010-019      | Tuberculosis, other forms ... ..                   | 4,365            | 3,142    | 1,346    | 515      | 330   | 332   | 314   |
| 040, 041     | Typhoid and paratyphoid fever ... ..               | 94               | 41       | 12       | 8        | 3     | 2     | 7     |
| 100-108      | Typhus and other rickettsial diseases ... ..       | 1                | —        | —        | —        | 1     | —     | —     |
| 056          | Whooping cough ... ..                              | 1,206            | 735      | 232      | 64       | 37    | 27    | 24    |

| ICD No.      | Disease                                            | Death rate per million living (all ages) |          |          |          |      |      |      |
|--------------|----------------------------------------------------|------------------------------------------|----------|----------|----------|------|------|------|
|              |                                                    | 1940-44*                                 | 1945-49* | 1950-54* | 1955-59* | 1960 | 1961 | 1962 |
| 055          | Diphtheria ... ..                                  | 48                                       | 8        | 1        | 0        | 0    | 0    | 0    |
| 045-048      | Dysentery ... ..                                   | 5                                        | 2        | 1        | 1        | 1    | 1    | 1    |
| 571, 764     | Gastro-enteritis ... ..                            | 109                                      | 98       | 30       | 18       | 19   | 20   | 21   |
| 480, 483     | Influenza ... ..                                   | 198                                      | 88       | 135      | 101      | 24   | 154  | 71   |
| 085          | Measles ... ..                                     | 18                                       | 11       | 4        | 2        | 1    | 3    | 1    |
| 057          | Meningococcal infections ... ..                    | 36                                       | 10       | 6        | 4        | 2    | 3    | 3    |
| 080, 081     | Acute poliomyelitis, including late effects ... .. | 3                                        | 9        | 8        | 4        | 1    | 2    | 1    |
| 651, 680-684 | Post-abortive and puerperal sepsis ... ..          | 13                                       | 6        | 3        | 2        | 1    | 1    | 2    |
| 050          | Scarlet fever ... ..                               | 3                                        | 1        | 0        | 0        | —    | 0    | 0    |
| 084          | Smallpox ... ..                                    | 0                                        | 0        | 0        | 0        | —    | —    | 1    |
| 001-008      | Tuberculosis, respiratory ... ..                   | 563                                      | 439      | 229      | 100      | 68   | 65   | 59   |
| 010-019      | Tuberculosis, other forms ... ..                   | 113                                      | 76       | 31       | 11       | 7    | 7    | 7    |
| 040, 041     | Typhoid and paratyphoid fever ... ..               | 2                                        | 1        | 0        | 0        | 0    | 0    | 0    |
| 100-108      | Typhus and other rickettsial diseases ... ..       | 0                                        | 0        | 0        | —        | 0    | —    | —    |
| 056          | Whooping cough ... ..                              | 31                                       | 18       | 6        | 1        | 1    | 1    | 1    |

\* Annual averages.

*England and Wales: Standardized Mortality Ratios (all ages) and death rates per million population at ages under 15 years from certain diseases, 1951, 1961 and 1962.*

| ICD Number   | Cause                              | Standardized Mortality Ratios<br>(base years 1950-1952 taken as 100) |      |      |
|--------------|------------------------------------|----------------------------------------------------------------------|------|------|
|              |                                    | 1951                                                                 | 1961 | 1962 |
| 001-019      | Tuberculosis (all forms) ... ..    | 103                                                                  | 24   | 22   |
| 020-029      | Syphilis ... ..                    | 104                                                                  | 56   | 51   |
| 040,041      | Typhoid and paratyphoid fevers ... | 115                                                                  | 11   | 39   |
| 057          | Meningococcal infections ... ..    | 101                                                                  | 44   | 45   |
| 140-205      | Cancer ... ..                      | 100                                                                  | 102  | 102  |
| 260          | Diabetes mellitus ... ..           | 104                                                                  | 94   | 92   |
| 410-443      | Diseases of heart ... ..           | 106                                                                  | 91   | 91   |
| 480-483      | Influenza ... ..                   | 222                                                                  | 86   | 39   |
| 490-493, 763 | Pneumonia (all forms) ... ..       | 114                                                                  | 129  | 134  |
| 540-542      | Peptic ulcer ... ..                | 105                                                                  | 73   | 76   |
| E970-E979    | Suicide ... ..                     | 101                                                                  | 108  | 115  |
|              |                                    | Death rates per million population at ages under 15 years            |      |      |
|              |                                    | 1951                                                                 | 1961 | 1962 |
| 050          | Scarlet fever ... ..               | 1                                                                    | 0    | 0    |
| 055          | Diphtheria ... ..                  | 2                                                                    | 1    | 0    |
| 056          | Whooping cough ... ..              | 46                                                                   | 3    | 2    |
| 080, 081     | Poliomyelitis ... ..               | 8                                                                    | 3    | 1    |
| 085          | Measles ... ..                     | 30                                                                   | 13   | 4    |
| 400-402      | Rheumatic fever ... ..             | 9                                                                    | 2    | 2    |
| 410-443      | Diseases of heart ... ..           | 12                                                                   | 6    | 6    |

## VII

*England and Wales: Outcome of Pregnancies*

| Year | Total<br>(live<br>and<br>still)<br>births | Maternal Mortality<br>from Childbearing<br>(ICD 640-9, 660-89) |                                               |        |       | Maternal Mortality<br>from Abortion<br>(ICD 650-2) |                                |                                         |                        |
|------|-------------------------------------------|----------------------------------------------------------------|-----------------------------------------------|--------|-------|----------------------------------------------------|--------------------------------|-----------------------------------------|------------------------|
|      |                                           | Deaths                                                         | Death Rate<br>per 1,000 Births                |        |       | Deaths                                             | Rate<br>per<br>1,000<br>births | Rate per<br>million women<br>aged 15-44 |                        |
|      |                                           |                                                                | Infections<br>(640, 641,<br>681, 682,<br>684) | Others | Total |                                                    |                                | Septic<br>(651)                         | Other<br>(650,<br>652) |
| 1951 | 693,514                                   | 419                                                            | 0.10                                          | 0.50   | 0.60  | 107                                                | 0.15                           | 7                                       | 4                      |
| 1958 | 757,003                                   | 265                                                            | 0.07                                          | 0.28   | 0.35  | 63                                                 | 0.08                           | 4                                       | 3                      |
| 1959 | 764,402                                   | 243                                                            | 0.06                                          | 0.26   | 0.32  | 47                                                 | 0.06                           | 3                                       | 2                      |
| 1960 | 800,824                                   | 248                                                            | 0.04                                          | 0.27   | 0.31  | 62                                                 | 0.08                           | 3                                       | 3                      |
| 1961 | 827,008                                   | 220                                                            | 0.04                                          | 0.23   | 0.27  | 54                                                 | 0.07                           | 4                                       | 2                      |
| 1962 | 854,200                                   | 242                                                            | 0.05                                          | 0.23   | 0.28  | 57                                                 | 0.07                           | 3                                       | 3                      |

## VIII

*England and Wales: Causes of death ascribed to pregnancy and childbirth*

| ICD No.                         | Cause of death                                                    | 1951 | 1958 | 1959 | 1960 | 1961 | 1962 |
|---------------------------------|-------------------------------------------------------------------|------|------|------|------|------|------|
| 642                             | Toxaemia of pregnancy ... ..                                      | 126  | 58   | 50   | 60   | 46   | 50   |
| 643, 644                        | Antepartum haemorrhage ... ..                                     | 8    | 9    | 3    | 1    | 2    | 4    |
| 645                             | Ectopic pregnancy ... ..                                          | 21   | 13   | 12   | 17   | 12   | 22   |
| 646-649                         | Other complications of pregnancy ...                              | 19   | 21   | 28   | 20   | 20   | 26   |
| 651                             | Abortion with sepsis... ..                                        | 67   | 35   | 29   | 33   | 32   | 28   |
| 650, 652                        | All other abortion ... ..                                         | 40   | 28   | 18   | 29   | 22   | 29   |
| 670                             | Antepartum haemorrhage complica-<br>ting delivery ... ..          | 27   | 16   | 18   | 24   | 18   | 19   |
| 671, 672                        | Postpartum haemorrhage ... ..                                     | 53   | 33   | 23   | 19   | 23   | 20   |
| 660,<br>673-678                 | } Other deaths from delivery ... ..                               | 77   | 47   | 48   | 65   | 54   | 47   |
| 682, 684                        | Puerperal phlebitis, thrombosis and<br>pulmonary embolism ... ..  | 49   | 40   | 30   | 27   | 24   | 34   |
| 640, 641,<br>681                | { Other sepsis of pregnancy child-<br>birth and puerperium ... .. | 16   | 13   | 17   | 8    | 6    | 12   |
| 685, 686                        | Puerperal toxæmia ... ..                                          | 15   | 8    | 7    | 3    | 9    | 3    |
| 680, 683,<br>687-689            | } Other complications of puerperium                               | 8    | 7    | 7    | 4    | 6    | 5    |
| Total ... ..                    |                                                                   | 526  | 328  | 290  | 310  | 274  | 299  |
| Total excluding abortion ... .. |                                                                   | 419  | 265  | 243  | 248  | 220  | 242  |

*England and Wales: Infant Mortality by Age and Legitimacy, 1957 to 1962*

|                        | Deaths per 1,000 live births |      |      |      |      |      |
|------------------------|------------------------------|------|------|------|------|------|
|                        | 1957                         | 1958 | 1959 | 1960 | 1961 | 1962 |
| <i>All Causes</i>      |                              |      |      |      |      |      |
| All infants            |                              |      |      |      |      |      |
| Under 4 weeks ...      | 16.5                         | 16.2 | 15.9 | 15.5 | 15.3 | 15.1 |
| 4 weeks-3 months ...   | 2.6                          | 2.6  | 2.4  | 2.5  | 2.4  | 2.5  |
| 3-6 months ...         | 2.1                          | 2.1  | 2.1  | 2.1  | 2.0  | 2.3  |
| 6-12 months ...        | 1.9                          | 1.7  | 1.8  | 1.6  | 1.7  | 1.8  |
| Total under 1 year ... | 23.1                         | 22.5 | 22.2 | 21.8 | 21.4 | 21.7 |
| All male infants       |                              |      |      |      |      |      |
| Under 4 weeks ...      | 18.7                         | 18.3 | 17.7 | 17.8 | 17.4 | 17.3 |
| 4 weeks-3 months ...   | 2.9                          | 2.8  | 2.7  | 2.8  | 2.7  | 2.8  |
| 3-6 months ...         | 2.2                          | 2.3  | 2.3  | 2.2  | 2.1  | 2.6  |
| 6-12 months ...        | 2.0                          | 1.9  | 1.9  | 1.7  | 1.7  | 1.8  |
| Total under 1 year ... | 25.8                         | 25.3 | 24.5 | 24.5 | 23.9 | 24.5 |
| All female infants     |                              |      |      |      |      |      |
| Under 4 weeks ...      | 14.1                         | 13.8 | 14.0 | 13.2 | 13.2 | 12.8 |
| 4 weeks-3 months ...   | 2.4                          | 2.3  | 2.1  | 2.3  | 2.1  | 2.2  |
| 3-6 months ...         | 2.0                          | 1.9  | 2.0  | 1.9  | 1.9  | 2.0  |
| 6-12 months ...        | 1.8                          | 1.6  | 1.7  | 1.5  | 1.7  | 1.7  |
| Total under 1 year ... | 20.3                         | 19.6 | 19.8 | 18.9 | 18.9 | 18.7 |
| Illegitimate infants   |                              |      |      |      |      |      |
| Under 4 weeks ...      | 22.7                         | 20.6 | 20.7 | 19.5 | 19.5 | 20.4 |
| 4 weeks-3 months ...   | 3.0                          | 3.7  | 2.7  | 3.0  | 2.4  | 2.9  |
| 3-6 months ...         | 2.6                          | 2.1  | 2.4  | 2.4  | 2.1  | 2.4  |
| 6-12 months ...        | 1.7                          | 1.4  | 1.6  | 1.5  | 1.3  | 1.5  |
| Total under 1 year ... | 30.0                         | 27.8 | 27.4 | 26.4 | 25.3 | 27.2 |
| Legitimate infants     |                              |      |      |      |      |      |
| Under 4 weeks ...      | 16.1                         | 15.9 | 15.6 | 15.3 | 15.1 | 14.7 |
| 4 weeks-3 months ...   | 2.6                          | 2.5  | 2.4  | 2.5  | 2.4  | 2.5  |
| 3-6 months ...         | 2.1                          | 2.1  | 2.1  | 2.1  | 2.0  | 2.3  |
| 6-12 months ...        | 1.9                          | 1.7  | 1.8  | 1.6  | 1.7  | 1.8  |
| Total under 1 year ... | 22.8                         | 22.3 | 21.9 | 21.5 | 21.2 | 21.3 |

\* Based on related live births prior to 1957.

## England and Wales: Causes of infant mortality: death rate per 100,000 live births

| ICD No                   | Cause of death                                   |       |       |       |       |       |       |
|--------------------------|--------------------------------------------------|-------|-------|-------|-------|-------|-------|
|                          |                                                  | 1931  | 1933  | 1939  | 1940  | 1941  | 1942  |
| 826                      | Whooping-cough ... ..                            | 40.3  | 3.4   | 2.1   | 1.3   | 1.0   | 2.1   |
| 800-819                  | Tuberculosis ... ..                              | 14.6  | 1.6   | 2.0   | 1.5   | 1.5   | 0.72  |
| 883                      | Measles ... ..                                   | 14.5  | 2.0   | 3.1   | 0.76  | 1.6   | 0.48  |
| 780.3-780.4              | Convulsions ... ..                               | 8.2   | 1.5   | 0.53  | 0.25  | 1.0   | 0.48  |
| 900-903,<br>990-993, 763 | Respiratory and pneumonia ... ..                 | 379   | 327   | 349   | 333   | 324   | 340   |
| 531, 764                 | Gastro-intestinal ... ..                         | 123   | 16.5  | 40.2  | 41.7  | 47.7  | 53.7  |
| 750-759                  | Cerebral malformations ... ..                    | 423   | 418   | 434   | 432   | 464   | 458   |
| 774, 776                 | Immaturity ... ..                                | 374   | 408   | 383   | 391   | 373   | 356   |
|                          | Immaturity mentioned as associated condition ... | 433   | 416   | 441   | 425   | 434   | 414   |
| 760, 761                 | Injury at birth ... ..                           | 282   | 264   | 247   | 232   | 250   | 221   |
| 783                      | Asphyxia and asphyxiants ... ..                  | 346   | 357   | 363   | 341   | 326   | 318   |
| 770                      | Hæmolytic disease ... ..                         | 24.5  | 30.3  | 48.1  | 47.4  | 41.2  | 47.1  |
| 8804, 8805               | Accidental suffocation ... ..                    | 40.4  | 20.6  | 18.7  | 17.1  | 14.5  | 19.1  |
|                          | Other causes ... ..                              | 465   | 315   | 310   | 297   | 303   | 306   |
|                          | All causes ... ..                                | 2,983 | 3,133 | 3,232 | 3,181 | 3,144 | 3,160 |

*Deaths of Women not classed to Pregnancy or Childbearing, but certified as associated therewith, 1958-1962*

| Cause of Death                                                                                                   | 1958 | 1959 | 1960 | 1961 | 1962 |
|------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|
| I. Infective and Parasitic Diseases (001-138) ...                                                                | 8    | 4    | 2    | 2    | 3    |
| II. Neoplasms (140-239) ... ..                                                                                   | 15   | 9    | 16   | 5    | 11   |
| III. Allergic, Endocrine System, Metabolic and Nutritional Diseases (240-289) ... ..                             | 5    | 3    | 2    | 1    | 6    |
| IV. Diseases of Blood and Blood-forming Organs (290-299) ... ..                                                  | 1    | —    | —    | 2    | 4    |
| V. Mental, Psychoneurotic and Personality Disorders (300-326) ... ..                                             | —    | —    | 1    | —    | —    |
| VI. Diseases of the Nervous System and Sense Organs (330-398) ... ..                                             | 6    | 5    | 3    | 5    | 4    |
| VII. Diseases of the Circulatory System—<br>Rheumatic fever and Chronic Rheumatic Heart Disease (400-416) ... .. | 27   | 15   | 15   | 19   | 16   |
| Other Diseases of the Heart (420-434) ...                                                                        | 5    | 3    | 6    | 4    | 4    |
| Hypertensive Disease (440-447) ... ..                                                                            | 2    | 3    | 1    | 1    | —    |
| Other diseases of the circulatory system (450-468) ... ..                                                        | 4    | 4    | 3    | —    | 2    |
| VIII. Diseases of the Respiratory System (470-527)                                                               | 7    | 17   | 6    | 16   | 8    |
| IX. Diseases of the Digestive System (530-587) ...                                                               | 11   | 7    | 10   | 6    | 4    |
| X. Diseases of the Genito-Urinary System (590-637) ... ..                                                        | 1    | 3    | —    | —    | 6    |
| XII. Diseases of the Skin and Cellular Tissue (690-716) ... ..                                                   | —    | —    | —    | —    | —    |
| XIII. Diseases of the Bones and Organs of Movement (720-749) ... ..                                              | 2    | 1    | 3    | 1    | —    |
| XIV. Congenital Malformations (750-759) ...                                                                      | 2    | 4    | 5    | 1    | 6    |
| EXVII. Accidents, Poisoning and Violence (E800-E999) ... ..                                                      | 2    | 4    | 2    | 8    | 3    |
| Total ...                                                                                                        | 98   | 82   | 75   | 71   | 77   |
| Associated with abortion (included above) ... ..                                                                 | 4    | 7    | 5    | 3    | 2    |

# XI

## England and Wales: Causes of Neonatal Mortality Death Rate at Ages Under 4 Weeks per 100,000 Live Births

| ICD No. | Cause                                             | 1951  | 1958  | 1959  | 1960  | 1961  | 1962  |
|---------|---------------------------------------------------|-------|-------|-------|-------|-------|-------|
| 001-138 | All infective and parasitic diseases ... ..       | 4     | 2     | 3     | 2     | 2     | 3     |
| 500-502 | Bronchitis ... ..                                 | 5     | 3     | 3     | 4     | 3     | 4     |
| 763     | Pneumonia ... ..                                  | 140   | 113   | 100   | 93    | 87    | 91    |
| 764     | Diarrhoea ... ..                                  | 14    | 5     | 6     | 6     | 8     | 7     |
| 774-776 | Immaturity ... ..                                 | 559   | 393   | 381   | 386   | 368   | 351   |
| 750-759 | Congenital malformations ...                      | 268   | 289   | 284   | 287   | 280   | 296   |
| 762     | Asphyxia and atelectasis ...                      | 349   | 354   | 359   | 338   | 323   | 316   |
| 773     | Congenital debility and ill-defined causes ... .. | 41    | 36    | 39    | 48    | 54    | 55    |
|         | Other causes ... ..                               | 508   | 422   | 412   | 389   | 409   | 387   |
|         | All causes ... ..                                 | 1,887 | 1,616 | 1,587 | 1,553 | 1,534 | 1,509 |

# XII

## England and Wales: Infant and child mortality, 1936-1962

|                | Under 1 year           | 1 year                      | 2 years | 3 years | 4 years |
|----------------|------------------------|-----------------------------|---------|---------|---------|
|                | per 1,000 live births* | Death rate per 1,000 living |         |         |         |
| 1936-40 ... .. | 55.3                   | 8.66                        | 4.23    | 3.13    | 2.68    |
| 1941-45 ... .. | 49.8                   | 5.85                        | 3.21    | 2.60    | 2.18    |
| 1946-50 ... .. | 36.4                   | 2.99                        | 1.64    | 1.25    | 1.05    |
| 1951-55 ... .. | 26.9                   | 1.95                        | 1.15    | 0.85    | 0.67    |
| 1958 ... ..    | 22.5                   | 1.41                        | 0.93    | 0.65    | 0.50    |
| 1959 ... ..    | 22.2                   | 1.44                        | 0.87    | 0.71    | 0.56    |
| 1960 ... ..    | 21.8                   | 1.38                        | 0.87    | 0.64    | 0.52    |
| 1961 ... ..    | 21.4                   | 1.50                        | 0.95    | 0.65    | 0.55    |
| 1962 ... ..    | 21.7                   | 1.37                        | 0.82    | 0.66    | 0.54    |

\* Based on related live births prior to 1957.

*England and Wales: Notification of Infectious Disease*

|                                                   | Number originally Notified |         |         |         | Number after correction of Diagnosis |         |         |         |
|---------------------------------------------------|----------------------------|---------|---------|---------|--------------------------------------|---------|---------|---------|
|                                                   | 1955                       | 1960    | 1964    | 1965    | 1955                                 | 1960    | 1961    | 1962    |
| Andrax                                            | —                          | —       | 9       | 9       | —                                    | —       | 8       | 8       |
| Contagious and relapsing fever                    | —                          | 1       | 1       | —       | —                                    | 1       | —       | —       |
| Diphtheria                                        | 568                        | 157     | 137     | 70      | 100                                  | 46      | 51      | 16      |
| Dysentery                                         | 38,823                     | 48,313  | 22,399  | 34,171  | 15,612                               | 43,288  | 20,462  | 30,489  |
| Acute erysipelas (infected)                       | 132                        | 143     | 134     | 111     | 143                                  | 144     | 138     | 153     |
| Acute erysipelas (post-infectious)                | 237                        | 218     | 257     | 233     | 149                                  | 195     | 138     | 179     |
| Dyspepsia                                         | 3,325                      | 3,481   | 2,296   | 5,363   | 3,308                                | 2,564   | 2,320   | 2,789   |
| Food poisoning                                    | 12,953                     | 10,546  | 10,904  | 7,300   | 9,964                                | 7,160   | 7,622   | 5,196   |
| Malaria (contracted at home)                      | —                          | —       | —       | —       | —                                    | —       | —       | —       |
| Malaria                                           | 529,820                    | 199,156 | 762,457 | 184,716 | 529,447                              | 159,313 | 761,461 | 184,757 |
| Meningitis                                        | —                          | 986     | 935     | 844     | —                                    | 930     | 651     | 522     |
| Microspora infection                              | 1,074                      | —       | —       | 1,027   | 1,129                                | 1,688   | 932     | 1,617   |
| Ophthalmia neonatorum                             | 1,185                      | 1,076   | 999     | 1,037   | 1,129                                | 1,688   | 932     | 1,617   |
| Peritonsillar abscess                             | 483                        | 247     | 235     | 138     | 376                                  | 229     | 251     | 114     |
| Presenile dementia (acute primary and infectious) | 27,137                     | 24,223  | 21,667  | 12,775  | 26,266                               | 14,543  | 11,492  | 12,159  |
| Acute poliomyelitis (paralytic)                   | 977                        | 323     | 335     | 260     | 715                                  | 257     | 703     | 311     |
| Acute poliomyelitis (non-paralytic)               | 444                        | 217     | 236     | 80      | 269                                  | 121     | 169     | 36      |
| Purpura pyrexica                                  | 10,789                     | 3,289   | 8,127   | 7,191   | 10,699                               | 8,556   | 8,517   | 7,146   |
| Scarlet fever                                     | 48,129                     | 32,532  | 26,127  | 15,417  | 37,914                               | 32,166  | 19,964  | 15,366  |
| Smallpox                                          | —                          | 2       | 1       | 66      | —                                    | 1       | 1       | 63      |
| Typhoid fever                                     | 146                        | 185     | 106     | 127     | 169                                  | 89      | 66      | 127     |
| Typhus fever (ambly typhus)                       | —                          | —       | 1       | —       | —                                    | —       | 1       | —       |
| Whooping cough                                    | 13,468                     | 28,217  | 24,562  | 6,466   | 15,292                               | 21,000  | 24,469  | 6,347   |

\* Not available prior to 1st December, 1960.

England and Wales: Total Reported Notifiables by Sex and Age, excluding Post-Neonatal Deaths, 1962

|                 | Scarlet fever |       | Whooping cough |       | Diphtheria |   | Measles |        | Acute poliomyelitis paralytic and non-paralytic |     | Dysentery |        | Meningococcal infection |     |
|-----------------|---------------|-------|----------------|-------|------------|---|---------|--------|-------------------------------------------------|-----|-----------|--------|-------------------------|-----|
|                 | M             | F     | M              | F     | M          | F | M       | F      | M                                               | F   | M         | F      | M                       | F   |
| 0 ... ..        | 34            | 34    | 515            | 511   | —          | — | 1,078   | 1,078  | 4                                               | 6   | 158       | 672    | 98                      | 69  |
| 1 ... ..        | 379           | 966   | 980            | 1,059 | —          | — | 30,715  | 30,007 | 26                                              | 25  | 1,678     | 2,418  | 75                      | 34  |
| 2 ... ..        | 1,809         | 1,461 | 1,080          | 1,054 | —          | — | 24,381  | 24,084 | 24                                              | 27  | 2,268     | 1,894  | 68                      | 17  |
| 3 ... ..        | 4,020         | 4,332 | 1,285          | 1,486 | —          | — | 40,371  | 38,953 | 30                                              | 28  | 4,228     | 3,315  | 13                      | 22  |
| 4 ... ..        | 946           | 1,014 | 171            | 189   | —          | 3 | 2,534   | 2,777  | 7                                               | 3   | 1,364     | 1,159  | 32                      | 11  |
| 5 ... ..        | 486           | 559   | 80             | 48    | 2          | — | 865     | 1,158  | 13                                              | 18  | 642       | 1,000  | 31                      | 39  |
| 15 and over ... | 343           | 217   | 39             | 85    | 1          | 2 | 302     | 681    | 31                                              | 23  | 1,387     | 4,000  | 41                      | 36  |
| Unstated ...    | 22            | 26    | 13             | 7     | —          | — | 220     | 291    | —                                               | —   | 259       | 330    | —                       | —   |
| All ages ...    | 7,022         | 7,442 | 3,913          | 4,412 | 9          | 7 | 92,179  | 90,278 | 145                                             | 129 | 14,979    | 15,312 | 333                     | 242 |

|                 | Typhoid and paratyphoid fever |     | Acute pneumonia |       | Erysipelas |     |
|-----------------|-------------------------------|-----|-----------------|-------|------------|-----|
|                 | M                             | F   | M               | F     | M          | F   |
| 0 ... ..        | 13                            | 14  | 1,079           | 765   | 13         | 1   |
| 1 ... ..        | 31                            | 23  | 640             | 455   | 32         | 26  |
| 2 ... ..        | 64                            | 49  | 1,368           | 1,165 | 184        | 95  |
| 3 ... ..        | 21                            | 22  | 1,680           | 1,303 | 410        | 476 |
| 4 ... ..        | 3                             | 1   | 1,613           | 1,303 | 179        | 157 |
| 15 and over ... | 1                             | 1   | 49              | 35    | 10         | 13  |
| All ages ...    | 123                           | 112 | 6,829           | 5,760 | 822        | 867 |

# APPENDIX B

## Tables relating to Tuberculosis: England and Wales

XV  
England and Wales: Deaths from Tuberculosis per annum,  
including those of non-civilians

| Year          | Respiratory |         |         | Other forms |         |         |
|---------------|-------------|---------|---------|-------------|---------|---------|
|               | Males       | Females | Persons | Males       | Females | Persons |
| 1851-1860 ... | 23,931      | 26,962  | 50,893  | 8,311       | 6,683   | 14,994  |
| 1861-1870 ... | 25,696      | 27,247  | 52,943  | 9,078       | 7,323   | 16,401  |
| 1871-1880 ... | 26,177      | 25,333  | 51,510  | 10,082      | 8,165   | 18,247  |
| 1881-1890 ... | 24,646      | 22,751  | 47,397  | 10,380      | 8,820   | 19,200  |
| 1891-1900 ... | 23,434      | 19,188  | 42,622  | 10,181      | 8,860   | 19,041  |
| 1901-1910 ... | 22,595      | 17,093  | 39,688  | 8,838       | 7,990   | 16,828  |
| 1911-1920 ... | 21,555      | 17,220  | 38,775  | 6,614       | 6,007   | 12,621  |
| 1921-1930 ... | 17,513      | 14,127  | 31,640  | 4,057       | 3,682   | 7,739   |
| 1931-1939 ... | 14,504      | 10,755  | 25,259  | 2,638       | 2,334   | 4,972   |
| 1940-1944 ... | 13,141      | 8,804   | 21,945  | 2,357       | 2,132   | 4,489   |
| 1945-1949 ... | 11,644      | 7,592   | 19,236  | 1,695       | 1,521   | 3,216   |
| 1950-1954 ... | 6,730       | 3,356   | 10,086  | 714         | 633     | 1,347   |
| 1955 ...      | 4,172       | 1,665   | 5,837   | 361         | 294     | 655     |
| 1956 ...      | 3,534       | 1,319   | 4,853   | 270         | 252     | 522     |
| 1957 ...      | 3,150       | 1,099   | 4,249   | 264         | 271     | 535     |
| 1958 ...      | 2,949       | 1,050   | 3,999   | 258         | 233     | 491     |
| 1959 ...      | 2,620       | 854     | 3,474   | 190         | 190     | 380     |
| 1960 ...      | 2,342       | 763     | 3,105   | 160         | 170     | 330     |
| 1961 ...      | 2,240       | 762     | 3,002   | 166         | 166     | 332     |
| 1962 ...      | 2,101       | 673     | 2,774   | 181         | 133     | 314     |

Note.—Deaths for 1851-1939 according to classification in use before 1940. (4th Revision.)  
Deaths for 1940-1960 according to classification in use from 1958. (7th Revision.)

XVI  
England and Wales: Tuberculosis: Standardized mortality ratios (base years 1950-1952 taken  
as 100) 1851-1962

| Year          | Respiratory |         |         | Other forms |         |         | All forms |         |         |
|---------------|-------------|---------|---------|-------------|---------|---------|-----------|---------|---------|
|               | Males       | Females | Persons | Males       | Females | Persons | Males     | Females | Persons |
| 1851-1860 ... | 1,027       | 1,752   | 1,336   | 2,060       | 1,779   | 1,926   | 1,182     | 1,758   | 1,438   |
| 1861-1870 ... | 980         | 1,580   | 1,236   | 2,006       | 1,728   | 1,872   | 1,134     | 1,610   | 1,346   |
| 1871-1880 ... | 886         | 1,300   | 1,063   | 1,923       | 1,659   | 1,796   | 1,043     | 1,372   | 1,190   |
| 1881-1890 ... | 743         | 1,024   | 863     | 1,766       | 1,594   | 1,682   | 897       | 1,137   | 1,004   |
| 1891-1900 ... | 618         | 746     | 675     | 1,584       | 1,463   | 1,525   | 758       | 882     | 815     |
| 1901-1910 ... | 508         | 576     | 540     | 1,252       | 1,212   | 1,232   | 610       | 692     | 649     |
| 1911-1920 ... | 439         | 523     | 479     | 932         | 869     | 898     | 502       | 583     | 541     |
| 1921-1930 ... | 297         | 394     | 336     | 529         | 521     | 524     | 323       | 415     | 362     |
| 1931-1939 ... | 209         | 271     | 233     | 342         | 330     | 336     | 223       | 281     | 245     |
| 1940-1944 ... | 198         | 222     | 209     | 321         | 299     | 309     | 210       | 234     | 221     |
| 1945-1949 ... | 158         | 189     | 169     | 205         | 204     | 204     | 162       | 191     | 174     |
| 1950-1954 ... | 86          | 83      | 85      | 83          | 82      | 82      | 86        | 82      | 85      |
| 1955 ...      | 53          | 41      | 49      | 42          | 38      | 40      | 52        | 51      | 48      |
| 1956 ...      | 44          | 32      | 40      | 31          | 33      | 32      | 43        | 33      | 39      |
| 1957 ...      | 39          | 27      | 35      | 30          | 34      | 32      | 38        | 28      | 35      |
| 1958 ...      | 36          | 26      | 33      | 29          | 29      | 29      | 36        | 26      | 32      |
| 1959 ...      | 32          | 21      | 28      | 21          | 24      | 23      | 31        | 21      | 28      |
| 1960 ...      | 28          | 19      | 25      | 18          | 21      | 19      | 27        | 19      | 24      |
| 1961 ...      | 27          | 19      | 24      | 18          | 21      | 19      | 26        | 19      | 24      |
| 1962 ...      | 25          | 16      | 22      | 19          | 16      | 18      | 24        | 16      | 22      |

Note.—Civilian mortality only in 1915-1920 and from 3rd September, 1939, to 31st December, 1949, for males and from 1st June, 1941, to 31st December, 1949, for females.

XVII  
*Tuberculosis deaths by Sex and Age, 1962*

|                           | Respiratory tuberculosis | Tuberculosis of meninges and central nervous system | Other tuberculosis |
|---------------------------|--------------------------|-----------------------------------------------------|--------------------|
| <b>Males—</b>             |                          |                                                     |                    |
| 0-... ..                  | 3                        | 17                                                  | 3                  |
| 15-... ..                 | 7                        | 6                                                   | 9                  |
| 25-... ..                 | 176                      | 7                                                   | 27                 |
| 45 and over ...           | 1,915                    | 9                                                   | 103                |
| <b>Total ... ..</b>       | <b>2,101</b>             | <b>39</b>                                           | <b>142</b>         |
| <b>Females—</b>           |                          |                                                     |                    |
| 0-... ..                  | 2                        | 11                                                  | 1                  |
| 15-... ..                 | 5                        | 7                                                   | 3                  |
| 25-... ..                 | 148                      | 2                                                   | 17                 |
| 45 and over ...           | 518                      | 4                                                   | 88                 |
| <b>Total ... ..</b>       | <b>673</b>               | <b>24</b>                                           | <b>109</b>         |
| <b>All Persons ... ..</b> | <b>2,774</b>             | <b>63</b>                                           | <b>251</b>         |

XVIII

*England and Wales: Formal Notifications of Tuberculosis and Deaths from tuberculosis of persons not notified before death, 1940-1962*

| Year        | Formal notifications |         |         | Deaths of tuberculous persons not notified before death |
|-------------|----------------------|---------|---------|---------------------------------------------------------|
|             | Males                | Females | Persons | Persons                                                 |
| 1940 ... .. | 26,260               | 20,312  | 46,572  | 3,395                                                   |
| 1941 ... .. | 28,966               | 21,998  | 50,964  | 4,383                                                   |
| 1942 ... .. | 29,560               | 23,059  | 52,619  | 3,971                                                   |
| 1943 ... .. | 30,121               | 24,221  | 54,342  | 3,780                                                   |
| 1944 ... .. | 30,044               | 24,269  | 54,313  | 3,468                                                   |
| 1945 ... .. | 29,124               | 22,986  | 52,110  | 3,603                                                   |
| 1946 ... .. | 29,003               | 22,286  | 51,289  | 3,580                                                   |
| 1947 ... .. | 28,879               | 22,846  | 51,725  | 3,682                                                   |
| 1948 ... .. | 28,863               | 23,713  | 52,576  | 3,551                                                   |
| 1949 ... .. | 28,981               | 23,060  | 52,041  | 3,282                                                   |
| 1950 ... .. | 26,969               | 22,389  | 49,358  | 2,704                                                   |
| 1951 ... .. | 27,383               | 22,057  | 49,440  | 2,606                                                   |
| 1952 ... .. | 26,557               | 21,536  | 48,093  | 2,239                                                   |
| 1953 ... .. | 25,927               | 20,619  | 46,546  | 2,286                                                   |
| 1954 ... .. | 23,694               | 18,654  | 42,348  | 1,627                                                   |
| 1955 ... .. | 21,684               | 16,450  | 38,134  | 1,495                                                   |
| 1956 ... .. | 20,683               | 14,821  | 35,504  | 1,465                                                   |
| 1957 ... .. | 19,185               | 13,474  | 32,659  | 1,474                                                   |
| 1958 ... .. | 17,955               | 11,883  | 29,838  | 1,335                                                   |
| 1959 ... .. | 16,447               | 10,653  | 27,100  | 1,171                                                   |
| 1960 ... .. | 14,351               | 9,254   | 23,605  | 952                                                     |
| 1961 ... .. | 13,422               | 8,325   | 21,747  | 1,036                                                   |
| 1962 ... .. | 11,749               | 6,096   | 17,845  | 1,016                                                   |

This table has been compiled from Annual Returns submitted in accordance with the Public Health (Tuberculosis) Regulations, 1952.

The figures differ from those given in previous Reports in that they comprise only the formal notifications of new cases and deaths of persons who had escaped notification. They exclude transfers between areas, in so far as they could be ascertained, duplicate notifications, and a few cases brought to the notice of Medical Officers of Health otherwise than by formal notification under the regulations. For details of the latter see following page.

In 1954 tuberculosis notifications were for the first time added to the quarterly returns of infectious diseases submitted by Medical Officers of Health to the General Register Office.

The number of tuberculosis notifications in 1962 recorded on these forms was:—

Males, 13,000

Females, 7,661

## XIX

*Tuberculosis Notifications by Sex and Age, deaths of persons not notified and transfers between areas. 1950 to 1962*

| Sex                                 | Year | Numbers of formal notifications according to age* |       |       |             |          | Deaths of tuberculous persons not notified before death | Transfers between areas other than formal notifications† |
|-------------------------------------|------|---------------------------------------------------|-------|-------|-------------|----------|---------------------------------------------------------|----------------------------------------------------------|
|                                     |      | 0-                                                | 15-   | 25-   | 45 and over | All ages | All ages                                                | All ages                                                 |
| <b>Respiratory tuberculosis</b>     |      |                                                   |       |       |             |          |                                                         |                                                          |
| <b>Males ...</b>                    | 1950 | 2,504                                             | 4,727 | 8,613 | 7,908       | 23,752   |                                                         |                                                          |
|                                     | 1951 | 2,482                                             | 4,663 | 8,782 | 8,330       | 24,257   |                                                         |                                                          |
|                                     | 1952 | 2,558                                             | 4,477 | 8,393 | 8,283       | 23,711   |                                                         |                                                          |
|                                     | 1953 | 2,461                                             | 4,243 | 7,856 | 8,782       | 23,342   |                                                         |                                                          |
|                                     | 1954 | 2,051                                             | 3,895 | 7,268 | 8,162       | 21,376   |                                                         |                                                          |
|                                     | 1955 | 1,785                                             | 3,411 | 6,444 | 8,001       | 19,641   | males and females.                                      | males and females.                                       |
|                                     | 1956 | 1,471                                             | 3,152 | 5,563 | 8,215       | 18,801   |                                                         |                                                          |
|                                     | 1957 | 1,262                                             | 2,652 | 5,762 | 7,856       | 17,522   |                                                         |                                                          |
|                                     | 1958 | 1,175                                             | 2,483 | 5,066 | 7,696       | 16,420   |                                                         |                                                          |
|                                     | 1959 | 981                                               | 2,008 | 4,767 | 7,471       | 15,207   |                                                         |                                                          |
|                                     | 1960 | 951                                               | 1,708 | 3,927 | 6,540       | 13,126   |                                                         |                                                          |
|                                     | 1961 | 851                                               | 1,473 | 3,652 | 6,254       | 12,230   |                                                         |                                                          |
|                                     | 1962 | 828                                               | 1,428 | 3,685 | 5,808       | 11,749   |                                                         |                                                          |
| <b>Females ...</b>                  | 1950 | 2,299                                             | 6,892 | 7,263 | 2,239       | 18,683   | 2,113                                                   | 7,829                                                    |
|                                     | 1951 | 2,429                                             | 6,542 | 7,120 | 2,348       | 18,439   | 2,067                                                   | 8,140                                                    |
|                                     | 1952 | 2,475                                             | 6,134 | 7,120 | 2,464       | 18,193   | 1,816                                                   | 8,448                                                    |
|                                     | 1953 | 2,386                                             | 5,695 | 6,955 | 2,539       | 17,575   | 1,751                                                   | +                                                        |
|                                     | 1954 | 2,022                                             | 5,260 | 6,054 | 2,261       | 15,597   | 1,530                                                   | +                                                        |
|                                     | 1955 | 1,812                                             | 4,381 | 5,437 | 2,309       | 13,939   | 1,224                                                   | +                                                        |
|                                     | 1956 | 1,486                                             | 3,829 | 4,975 | 2,251       | 12,541   | 1,244                                                   | +                                                        |
|                                     | 1957 | 1,395                                             | 3,185 | 4,516 | 2,212       | 11,308   | 1,250                                                   | +                                                        |
|                                     | 1958 | 1,245                                             | 2,728 | 4,354 | 2,144       | 9,971    | 1,106                                                   | +                                                        |
|                                     | 1959 | 1,000                                             | 2,369 | 3,572 | 2,132       | 9,073    | 980                                                     | +                                                        |
|                                     | 1960 | 937                                               | 1,856 | 2,968 | 1,912       | 7,673    | 820                                                     | +                                                        |
|                                     | 1961 | 961                                               | 1,851 | 2,613 | 1,796       | 6,821    | 888                                                     | +                                                        |
|                                     | 1962 | 847                                               | 1,558 | 2,266 | 1,625       | 6,096    | 857                                                     | +                                                        |
| <b>Non-respiratory tuberculosis</b> |      |                                                   |       |       |             |          |                                                         |                                                          |
| <b>Males ...</b>                    | 1950 | 1,720                                             | 552   | 617   | 328         | 3,217    |                                                         |                                                          |
|                                     | 1951 | 1,627                                             | 518   | 633   | 328         | 3,126    |                                                         |                                                          |
|                                     | 1952 | 1,379                                             | 534   | 580   | 353         | 2,846    |                                                         |                                                          |
|                                     | 1953 | 1,178                                             | 445   | 541   | 421         | 2,585    |                                                         |                                                          |
|                                     | 1954 | 979                                               | 405   | 586   | 348         | 2,318    |                                                         |                                                          |
|                                     | 1955 | 742                                               | 421   | 533   | 347         | 2,043    | males and females.                                      | males and females.                                       |
|                                     | 1956 | 628                                               | 362   | 525   | 367         | 1,882    |                                                         |                                                          |
|                                     | 1957 | 468                                               | 330   | 469   | 356         | 1,623    |                                                         |                                                          |
|                                     | 1958 | 387                                               | 308   | 507   | 333         | 1,535    |                                                         |                                                          |
|                                     | 1959 | 286                                               | 237   | 415   | 302         | 1,240    |                                                         |                                                          |
|                                     | 1960 | 244                                               | 190   | 486   | 305         | 1,225    |                                                         |                                                          |
|                                     | 1961 | 211                                               | 216   | 470   | 295         | 1,192    |                                                         |                                                          |
|                                     | 1962 | 189                                               | 201   | 513   | 314         | 1,217    |                                                         |                                                          |
| <b>Females ...</b>                  | 1950 | 1,614                                             | 836   | 926   | 330         | 3,706    | 591                                                     | 677                                                      |
|                                     | 1951 | 1,497                                             | 838   | 866   | 397         | 3,618    | 539                                                     | 695                                                      |
|                                     | 1952 | 1,305                                             | 688   | 884   | 466         | 3,343    | 423                                                     | 590                                                      |
|                                     | 1953 | 1,082                                             | 679   | 835   | 448         | 3,044    | 535                                                     | +                                                        |
|                                     | 1954 | 970                                               | 691   | 897   | 499         | 3,057    | 297                                                     | +                                                        |
|                                     | 1955 | 707                                               | 570   | 803   | 431         | 2,511    | 271                                                     | +                                                        |
|                                     | 1956 | 569                                               | 524   | 743   | 444         | 2,280    | 221                                                     | +                                                        |
|                                     | 1957 | 519                                               | 454   | 778   | 425         | 2,176    | 224                                                     | +                                                        |
|                                     | 1958 | 375                                               | 396   | 695   | 443         | 1,912    | 239                                                     | +                                                        |
|                                     | 1959 | 280                                               | 318   | 548   | 434         | 1,580    | 191                                                     | +                                                        |
|                                     | 1960 | 252                                               | 316   | 625   | 388         | 1,581    | 132                                                     | +                                                        |
|                                     | 1961 | 198                                               | 278   | 602   | 426         | 1,504    | 148                                                     | +                                                        |
|                                     | 1962 | 188                                               | 271   | 562   | 436         | 1,457    | 159                                                     | +                                                        |

\* Included in the Annual Returns furnished by Local Authorities.

† Includes also a few cases brought to notice from miscellaneous sources otherwise than in preceding columns. The numbers in this column should be disregarded when a measure of new cases diagnosed during the year is required. Some transfers of cases formally notified in the same year, whose total cannot be accurately ascertained are included with the formal notifications.

‡ No longer available.

TABLE XX

*Tuberculosis*  
*Notifications per 100,000 of the Population*

|                                 | Respiratory        |       | Non-Respiratory    |      |
|---------------------------------|--------------------|-------|--------------------|------|
|                                 | Average<br>1957-61 | 1962  | Average<br>1957-61 | 1962 |
| England and Wales... ..         | 52·60              | 38·24 | 6·86               | 5·73 |
| English County Councils         |                    |       |                    |      |
| Bedfordshire ... ..             | 55                 | 45    | 9                  | 12   |
| Berkshire ... ..                | 43                 | 27    | 7                  | 6    |
| Buckinghamshire ... ..          | 35                 | 24    | 8                  | 8    |
| Cambridgeshire ... ..           | 32                 | 20    | 4                  | 3    |
| Cheshire ... ..                 | 31                 | 25    | 5                  | 4    |
| Cornwall ... ..                 | 50                 | 35    | 7                  | 3    |
| Cumberland ... ..               | 63                 | 39    | 10                 | 6    |
| Derbyshire ... ..               | 36                 | 15    | 6                  | 10   |
| Devonshire ... ..               | 31                 | 21    | 8                  | 7    |
| Dorsetshire ... ..              | 40                 | 25    | 6                  | 4    |
| Durham ... ..                   | 53                 | 44    | 8                  | 6    |
| Essex ... ..                    | 39                 | 31    | 5                  | 4    |
| Gloucestershire ... ..          | 43                 | 38    | 9                  | 7    |
| Hampshire ... ..                | 40                 | 24    | 5                  | 4    |
| Herefordshire ... ..            | 40                 | 17    | 7                  | 8    |
| Hertfordshire ... ..            | 50                 | 34    | 7                  | 6    |
| Huntingdonshire ... ..          | 35                 | 25    | 7                  | 7    |
| Isle of Ely ... ..              | 34                 | 17    | 5                  | —    |
| Isle of Scilly ... ..           | —                  | —     | —                  | —    |
| Isle of Wight ... ..            | 41                 | 20    | 6                  | 3    |
| Kent ... ..                     | 48                 | 33    | 6                  | 6    |
| Lancashire ... ..               | 44                 | 33    | 6                  | 4    |
| Leicestershire ... ..           | 28                 | 17    | 7                  | 4    |
| Lincolnshire (Holland) ... ..   | 24                 | 13    | 6                  | 6    |
| Lincolnshire (Kesteven) ... ..  | 33                 | 31    | 5                  | 5    |
| Lincolnshire (Lindsey) ... ..   | 32                 | 30    | 7                  | 4    |
| London ... ..                   | 88                 | 66    | 8                  | 8    |
| Middlesex ... ..                | 52                 | 40    | 7                  | 5    |
| Norfolk ... ..                  | 29                 | 27    | 6                  | 4    |
| Northamptonshire ... ..         | 39                 | 25    | 8                  | 5    |
| Northumberland ... ..           | 49                 | 42    | 9                  | 6    |
| Nottinghamshire ... ..          | 50                 | 32    | 7                  | 7    |
| Oxfordshire ... ..              | 45                 | 28    | 8                  | 4    |
| Peterborough, Soke of ... ..    | 38                 | 35    | 6                  | 8    |
| Rutland ... ..                  | 29                 | 30    | 5                  | 4    |
| Salop ... ..                    | 31                 | 16    | 9                  | 5    |
| Somerset ... ..                 | 36                 | 20    | 7                  | 5    |
| Staffordshire ... ..            | 45                 | 28    | 5                  | 6    |
| Suffolk East... ..              | 32                 | 20    | 7                  | 5    |
| Suffolk West ... ..             | 26                 | 30    | 5                  | 5    |
| Surrey ... ..                   | 39                 | 30    | 4                  | 4    |
| Sussex East ... ..              | 36                 | 24    | 4                  | 3    |
| Sussex West ... ..              | 27                 | 17    | 4                  | 2    |
| Warwickshire ... ..             | 43                 | 31    | 8                  | 5    |
| Westmorland ... ..              | 33                 | 18    | 6                  | 1    |
| Wiltshire ... ..                | 36                 | 23    | 9                  | 9    |
| Worcestershire ... ..           | 40                 | 31    | 5                  | 3    |
| Yorkshire (East Riding) ... ..  | 24                 | 18    | 6                  | 2    |
| Yorkshire (North Riding) ... .. | 34                 | 24    | 5                  | 3    |
| Yorkshire (West Riding) ... ..  | 39                 | 27    | 6                  | 4    |

|                            | Respiratory        |      | Non-Respiratory    |      |
|----------------------------|--------------------|------|--------------------|------|
|                            | Average<br>1957-61 | 1962 | Average<br>1957-61 | 1962 |
| County Boroughs            |                    |      |                    |      |
| Barnsley ... ..            | 46                 | 33   | 6                  | 4    |
| Barrow-in-Furness ... ..   | 54                 | 45   | 4                  | 2    |
| Bath ... ..                | 42                 | 17   | 6                  | 6    |
| Birkenhead ... ..          | 63                 | 47   | 7                  | 3    |
| Birmingham ... ..          | 72                 | 60   | 9                  | 8    |
| Blackburn ... ..           | 48                 | 30   | 5                  | 4    |
| Blackpool ... ..           | 34                 | 36   | 3                  | 3    |
| Bolton ... ..              | 43                 | 33   | 6                  | 3    |
| Bootle ... ..              | 91                 | 100  | 3                  | 4    |
| Bournemouth ... ..         | 56                 | 33   | 5                  | 3    |
| Bradford ... ..            | 77                 | 87   | 10                 | 21   |
| Brighton ... ..            | 57                 | 28   | 3                  | 5    |
| Bristol ... ..             | 52                 | 30   | 8                  | 3    |
| Burnley ... ..             | 63                 | 34   | 8                  | 2    |
| Burton-upon-Trent ... ..   | 50                 | 28   | 2                  | 2    |
| Bury ... ..                | 27                 | 11   | 5                  | 2    |
| Canterbury ... ..          | 38                 | 29   | 7                  | 3    |
| Carlisle ... ..            | 73                 | 41   | 14                 | —    |
| Chester ... ..             | 62                 | 39   | 4                  | 3    |
| Coventry ... ..            | 70                 | 43   | 12                 | 8    |
| Croydon ... ..             | 57                 | 41   | 7                  | 4    |
| Darlington ... ..          | 57                 | 34   | 1                  | 2    |
| Derby ... ..               | 51                 | 42   | 7                  | 5    |
| Dewsbury ... ..            | 31                 | 62   | 13                 | 3    |
| Doncaster ... ..           | 64                 | 45   | 6                  | 5    |
| Dudley ... ..              | 77                 | 50   | 5                  | 8    |
| Eastbourne ... ..          | 33                 | 16   | 4                  | 2    |
| East Ham ... ..            | 75                 | 70   | 7                  | 9    |
| Exeter ... ..              | 60                 | 37   | 15                 | 11   |
| Gateshead ... ..           | 106                | 72   | 12                 | 7    |
| Gloucester ... ..          | 66                 | 30   | 10                 | 3    |
| Great Yarmouth ... ..      | 31                 | 11   | 3                  | 6    |
| Grimsby ... ..             | 66                 | 63   | 14                 | 8    |
| Halifax ... ..             | 54                 | 73   | 4                  | 10   |
| Hastings ... ..            | 53                 | 51   | 4                  | 8    |
| Huddersfield ... ..        | 52                 | 54   | 12                 | 6    |
| Ipswich ... ..             | 36                 | 31   | 7                  | 6    |
| Kingston-upon-Hull ... ..  | 58                 | 41   | 5                  | 2    |
| Leeds ... ..               | 64                 | 58   | 6                  | 5    |
| Leicester ... ..           | 57                 | 47   | 8                  | 10   |
| Lincoln ... ..             | 57                 | 51   | 10                 | 10   |
| Liverpool ... ..           | 113                | 59   | 8                  | 7    |
| Manchester ... ..          | 71                 | 60   | 7                  | 5    |
| Middlesbrough ... ..       | 77                 | 56   | 5                  | 5    |
| Newcastle-upon-Tyne ... .. | 87                 | 56   | 13                 | 14   |
| Northampton ... ..         | 37                 | 33   | 6                  | 10   |
| Norwich ... ..             | 38                 | 32   | 5                  | 6    |
| Nottingham ... ..          | 81                 | 57   | 9                  | 9    |
| Oldham ... ..              | 46                 | 34   | 3                  | 6    |
| Oxford ... ..              | 65                 | 67   | 9                  | 5    |
| Plymouth ... ..            | 72                 | 43   | 7                  | 5    |
| Portsmouth ... ..          | 43                 | 34   | 4                  | 1    |
| Preston ... ..             | 40                 | 40   | 6                  | 4    |
| Reading ... ..             | 74                 | 80   | 7                  | 5    |
| Rochdale ... ..            | 40                 | 36   | 3                  | 9    |
| Rotherham ... ..           | 40                 | 31   | 5                  | 8    |
| St Helens ... ..           | 63                 | 45   | 8                  | 9    |
| Salford ... ..             | 68                 | 39   | 4                  | 3    |

|                              | Respiratory        |      | Non-Respiratory    |      |
|------------------------------|--------------------|------|--------------------|------|
|                              | Average<br>1957-61 | 1962 | Average<br>1957-61 | 1962 |
| <i>County Boroughs—contd</i> |                    |      |                    |      |
| Sheffield ... ..             | 65                 | 51   | 8                  | 6    |
| Smethwick ... ..             | 129                | 70   | 14                 | 16   |
| Southampton ... ..           | 65                 | 51   | 9                  | 5    |
| Southend-on-Sea ... ..       | 44                 | 36   | 6                  | 7    |
| Southport ... ..             | 29                 | 33   | 3                  | 4    |
| South Shields ... ..         | 113                | 87   | 10                 | 10   |
| Stockport ... ..             | 37                 | 40   | 3                  | 6    |
| Stoke-on-Trent ... ..        | 51                 | 35   | 6                  | 4    |
| Sunderland ... ..            | 76                 | 45   | 9                  | 13   |
| Tynemouth ... ..             | 81                 | 48   | 8                  | 14   |
| Wakefield ... ..             | 26                 | 21   | 4                  | —    |
| Wallasey ... ..              | 55                 | 37   | 10                 | 5    |
| Walsall ... ..               | 70                 | 48   | 6                  | 12   |
| Warrington ... ..            | 56                 | 25   | 4                  | 3    |
| West Bromwich ... ..         | 65                 | 74   | 10                 | 15   |
| West Ham ... ..              | 54                 | 43   | 7                  | 8    |
| West Hartlepool ... ..       | 44                 | 38   | 4                  | 1    |
| Wigan ... ..                 | 59                 | 34   | 5                  | —    |
| Wolverhampton ... ..         | 73                 | 63   | 7                  | 3    |
| Worcester ... ..             | 53                 | 49   | 5                  | 3    |
| York ... ..                  | 26                 | 30   | 4                  | —    |
| TOTAL                        |                    |      |                    |      |

TABLE XXI

1661

England and Wales

Numbers of acute Non-tuberculous conditions diagnosed following examinations made by *Minor Radiography Units*, distinguishing Age and Type of Examination

100

| Case No. |                                                                           | Sex    | AGE GROUPS |          |            |            |            |            |                |              |              |                |        | Not stated     | All ages |
|----------|---------------------------------------------------------------------------|--------|------------|----------|------------|------------|------------|------------|----------------|--------------|--------------|----------------|--------|----------------|----------|
|          |                                                                           |        | Under 14   | 14       | 15-19      | 20-24      | 25-29      | 30-34      | 35-39          | 40-44        | 45-49        | 50 and over    |        |                |          |
| All      | Non-Tuberculous Conditions—                                               | M<br>F | 11<br>16   | 15<br>12 | 110<br>114 | 170<br>227 | 400<br>393 | 743<br>561 | 1,004<br>1,361 | 1,764<br>211 | 1,624<br>197 | 2,276<br>1,444 | 2<br>1 | 1,412<br>9,067 |          |
| 1        | Malignant Neoplasms                                                       | M<br>F | —<br>—     | —<br>—   | 2<br>3     | —<br>2     | 10<br>7    | 21<br>34   | 460<br>191     | 620<br>44    | 613<br>41    | 791<br>113     | —<br>— | 1,494<br>221   |          |
| 2        | Benign Neoplasms                                                          | M<br>F | —<br>—     | —<br>—   | 1<br>2     | 4<br>3     | 14<br>14   | 42<br>44   | 111<br>58      | 231<br>50    | 281<br>21    | 411<br>11      | —<br>— | 100<br>285     |          |
| 3        | Excess of thyroid, including Struma                                       | M<br>F | 4<br>2     | —<br>1   | 8<br>8     | 1<br>1     | 7<br>7     | 3<br>8     | 5<br>5         | 1<br>4       | 1<br>1       | 2<br>2         | —<br>— | 20<br>41       |          |
| 4        | Struma, including Enlarged thyroid Glands                                 | M<br>F | —<br>1     | —<br>8   | 21<br>21   | 50<br>71   | 110<br>101 | 111<br>65  | 221<br>11      | 111<br>11    | 4<br>11      | 8<br>8         | —<br>— | 341<br>241     |          |
| 5        | Organized Cardiac Abnormalities and Abnormalities of the Vascular System. | M<br>F | 4<br>8     | 5<br>5   | 21<br>21   | 21<br>21   | 24<br>21   | 40<br>21   | 30<br>31       | 14<br>12     | 12<br>7      | 3<br>4         | —<br>— | 114<br>111     |          |
| 6        | Acquired Cardiac Abnormalities and Abnormalities of the Vascular System.  | M<br>F | 3<br>16    | 4<br>7   | 48<br>100  | 100<br>117 | 107<br>104 | 141<br>277 | 191<br>124     | 140<br>111   | 140<br>278   | 1,100<br>1,077 | 2<br>1 | 1,712<br>1,146 |          |
| 7        | Pericarditis without P.M.F.                                               | M<br>F | —<br>—     | —<br>—   | —<br>—     | —<br>1     | 10<br>6    | 194<br>20  | 141<br>11      | 100<br>14    | 100<br>11    | 200<br>4       | —<br>— | 1,111<br>21    |          |
| 8        | Pericarditis with P.M.F.—                                                 | M<br>F | —<br>—     | —<br>—   | —<br>—     | —<br>—     | —<br>—     | 10<br>1    | 20<br>2        | —<br>—       | —<br>—       | 41<br>1        | —<br>— | 10<br>11       |          |

| Code No. |                                                                                                   | Sex    | VOLUME GROUPS                                |                          |                                        |                  |                  |          |                   |                                     |                             |                                 |                              |                     |
|----------|---------------------------------------------------------------------------------------------------|--------|----------------------------------------------|--------------------------|----------------------------------------|------------------|------------------|----------|-------------------|-------------------------------------|-----------------------------|---------------------------------|------------------------------|---------------------|
|          |                                                                                                   |        | Physical Con-<br>ditions and Op-<br>erations | R.M.<br>Purpos<br>Number | General<br>Trans-<br>action<br>Numbers | School Children  |                  | Control  | Special<br>Groups | Present<br>in<br>Training<br>Boards | Particular<br>and<br>Office | General<br>Public<br>Volunteers | Adm-<br>inistrative<br>Staff | Preschool<br>Nurses |
|          |                                                                                                   |        |                                              |                          |                                        | Majority<br>Type | School<br>Groups |          |                   |                                     |                             |                                 |                              |                     |
| A-1      | Non-Professional Conditions . .                                                                   | M<br>F | 141<br>154                                   | —<br>1                   | 1,111<br>1,111                         | 4<br>26          | 10<br>14         | 11<br>14 | 11<br>11          | 100<br>10                           | 1,100<br>1,100              | 1,100<br>1,100                  | —<br>71                      | 21<br>110           |
| 2        | Malpractice Nurses . . . . .                                                                      | M<br>F | 34<br>11                                     | —<br>—                   | 1,111<br>111                           | —<br>—           | —<br>—           | 1<br>1   | 1<br>1            | 10<br>1                             | 10<br>10                    | 10<br>10                        | —<br>—                       | 17<br>1             |
| 3        | Malpractice Nurses . . . . .                                                                      | M<br>F | 1<br>1                                       | —<br>—                   | 47<br>40                               | —<br>—           | —<br>1           | 1<br>1   | 1<br>1            | 1<br>1                              | 100<br>10                   | 10<br>10                        | —<br>2                       | 1<br>11             |
| 4        | Lymphadenitis, Tubercle<br>Infection . . . . .                                                    | M<br>F | —<br>1                                       | —<br>—                   | 11<br>10                               | —<br>—           | —<br>—           | —<br>1   | —<br>1            | —<br>1                              | 10<br>11                    | 1<br>1                          | —<br>—                       | —<br>1              |
| 5        | Respiratory Conditions, Tubercle<br>Infection . . . . .                                           | M<br>F | 1<br>1                                       | —<br>—                   | 10<br>100                              | 1<br>1           | —<br>4           | 1<br>1   | 1<br>1            | —<br>1                              | 100<br>10                   | 10<br>10                        | —<br>1                       | 1<br>1              |
| 6        | Cardiac Conditions, Tubercle<br>Infection and Malpractice of<br>the Vascular System . . . . .     | M<br>F | —<br>1                                       | —<br>—                   | 11<br>10                               | 1<br>1           | 1<br>1           | 1<br>1   | 1<br>1            | —<br>1                              | 10<br>10                    | 10<br>10                        | —<br>1                       | 1<br>1              |
| 7        | Respiratory Conditions, Tubercle<br>Infection and Malpractice of the<br>Vascular System . . . . . | M<br>F | 11<br>141                                    | —<br>—                   | 1,111<br>1,111                         | 1<br>1           | 1<br>1           | 11<br>11 | 11<br>11          | 10<br>10                            | 1,100<br>1,100              | 1,100<br>1,100                  | —<br>10                      | 10<br>110           |
| 8        | Parasitosis without P.M.F. . .                                                                    | M<br>F | 14<br>—                                      | —<br>1                   | 100<br>10                              | —<br>—           | —<br>—           | 1<br>1   | 10<br>—           | 10<br>—                             | 10<br>11                    | 100<br>1                        | —<br>4                       | 10<br>1             |
| 9        | Parasitosis with P.M.F. . . .                                                                     | M<br>F | —<br>—                                       | —<br>—                   | 10<br>1                                | —<br>—           | —<br>—           | —<br>1   | —<br>1            | —<br>1                              | 10<br>1                     | 10<br>1                         | —<br>1                       | 10<br>1             |



## APPENDIX C

## Tables relating to Venereal Disease: England and Wales

TABLE A

*Number of cases (in all stages) dealt with for the first time at any centre\**

|         | Year | Syphilis | Soft<br>Chancere | Gonorr-<br>hoea | Non-<br>Gonococcal<br>Urethritis<br>(Males<br>only) | Other Conditions†              | Total<br>sum of<br>Columns<br>2-6      |
|---------|------|----------|------------------|-----------------|-----------------------------------------------------|--------------------------------|----------------------------------------|
| MALES   | 1950 | 5,979    | 433              | 17,007          | —                                                   | 55,068                         | 78,487                                 |
|         |      |          |                  |                 |                                                     | <i>Requiring<br/>treatment</i> | <i>Not<br/>requiring<br/>treatment</i> |
|         | 1951 | 4,506    | 437              | 14,975          | 10,794                                              | 11,607                         | 26,956                                 |
|         | 1952 | 3,760    | 389              | 15,510          | 11,552                                              | 12,587                         | 25,928                                 |
|         | 1953 | 3,272    | 347              | 15,242          | 13,157                                              | 13,566                         | 25,619                                 |
|         | 1954 | 2,929    | 301              | 13,962          | 13,279                                              | 13,071                         | 24,651                                 |
|         | 1955 | 2,711    | 285              | 14,079          | 14,269                                              | 13,613                         | 24,436                                 |
|         | 1956 | 2,778    | 307              | 16,377          | 14,825                                              | 14,254                         | 23,514                                 |
|         | 1957 | 2,747    | 254              | 19,620          | 16,066                                              | 14,332                         | 23,032                                 |
|         | 1958 | 2,497    | 247              | 22,398          | 17,606                                              | 14,562                         | 21,711                                 |
|         | 1959 | 2,252    | 265              | 24,964          | 20,227                                              | 15,241                         | 23,160                                 |
|         | 1960 | 2,401    | 226              | 26,618          | 22,004                                              | 17,393                         | 26,087                                 |
| FEMALES | 1961 | 2,730    | 227              | 29,519          | 24,472                                              | 18,562                         | 27,567                                 |
|         | 1962 | 2,496    | 154              | 28,329          | 24,494                                              | 19,244                         | 25,217                                 |
|         | 1950 | 4,988    | 17               | 3,498           | —                                                   | 23,840                         | 32,342                                 |
|         |      |          |                  |                 |                                                     | <i>Requiring<br/>treatment</i> | <i>Not<br/>requiring<br/>treatment</i> |
|         | 1951 | 3,926    | 16               | 3,089           | —                                                   | 8,517                          | 12,408                                 |
|         | 1952 | 3,362    | 14               | 3,585           | —                                                   | 8,916                          | 11,560                                 |
|         | 1953 | 2,914    | 9                | 4,021           | —                                                   | 9,834                          | 10,612                                 |
|         | 1954 | 2,352    | 8                | 3,574           | —                                                   | 10,117                         | 9,503                                  |
|         | 1955 | 2,272    | 10               | 3,766           | —                                                   | 10,182                         | 9,075                                  |
|         | 1956 | 2,363    | 9                | 4,011           | —                                                   | 10,939                         | 8,835                                  |
|         | 1957 | 2,230    | 6                | 4,761           | —                                                   | 11,317                         | 9,098                                  |
|         | 1958 | 1,829    | 12               | 5,489           | —                                                   | 12,149                         | 9,001                                  |
|         | 1959 | 1,675    | 2                | 6,380           | —                                                   | 12,752                         | 9,544                                  |
|         | 1960 | 1,545    | 5                | 7,152           | —                                                   | 15,199                         | 10,876                                 |
|         | 1961 | 1,712    | 1                | 7,588           | —                                                   | 16,861                         | 12,122                                 |
|         | 1962 | 1,624    | 3                | 7,109           | —                                                   | 16,973                         | 12,567                                 |

\* Excludes cases transferred from centre to centre.

† Including non-gonococcal urethritis up to 1950.

TABLE B

*Cases of Acquired Syphilis in Table A, with Infections of Less than One Year*

| Year        | Number |         | Per cent of Table A cases |         |
|-------------|--------|---------|---------------------------|---------|
|             | Males  | Females | Males                     | Females |
| 1950 ... .. | 2,678  | 1,465   | 44.8                      | 29.4    |
| 1951 ... .. | 1,498  | 774     | 33.2                      | 19.7    |
| 1952 ... .. | 891    | 462     | 23.7                      | 13.7    |
| 1953 ... .. | 755    | 319     | 23.0                      | 10.9    |
| 1954 ... .. | 600    | 208     | 20.5                      | 8.9     |
| 1955 ... .. | 609    | 228     | 22.5                      | 10.0    |
| 1956 ... .. | 587    | 257     | 21.1                      | 10.8    |
| 1957 ... .. | 555    | 192     | 20.2                      | 8.6     |
| 1958 ... .. | 522    | 182     | 20.9                      | 9.9     |
| 1959 ... .. | 564    | 209     | 25.0                      | 12.5    |
| 1960 ... .. | 819    | 175     | 34.1                      | 11.3    |
| 1961 ... .. | 965    | 234     | 35.3                      | 13.6    |
| 1962 ... .. | 995    | 229     | 39.9                      | 13.5    |

TABLE C

*Cases of Congenital Syphilis dealt with for the first time at the Treatment Centres*

| Year        | Under 1 year | 1 and under 5 years | 5 and under 15 years | 15 years and over | Totals |
|-------------|--------------|---------------------|----------------------|-------------------|--------|
| 1950 ... .. | 227          | 141                 | 203                  | 652               | 1,223  |
| 1951 ... .. | 156          | 89                  | 198                  | 684               | 1,127  |
| 1952 ... .. | 110          | 101                 | 191                  | 547               | 949    |
| 1953 ... .. | 95           | 77                  | 152                  | 520               | 844    |
| 1954 ... .. | 48           | 41                  | 119                  | 478               | 686    |
| 1955 ... .. | 41           | 30                  | 114                  | 459               | 644    |
| 1956 ... .. | 36           | 31                  | 82                   | 441               | 590    |
| 1957 ... .. | 27           | 26                  | 77                   | 427               | 557    |
| 1958 ... .. | 17           | 15                  | 65                   | 340               | 457    |
| 1959 ... .. | 20           | 19                  | 29                   | 304               | 372    |
| 1960 ... .. | 18           | 10                  | 38                   | 323               | 389    |
| 1961 ... .. | 23           | 4                   | 21                   | 292               | 340    |
| 1962 ... .. | 11           | 8                   | 12                   | 287               | 318    |

TABLE D

*Death Rates per 1,000 Live Births, of Infants under  
1 year Certified as due to Congenital Syphilis*

| Year     | Rate | Year     | Rate | Year     | Rate | Year     | Rate  |
|----------|------|----------|------|----------|------|----------|-------|
| 1912 ... | 1.34 | 1924 ... | 0.91 | 1937 ... | 0.19 | 1950 ... | 0.04  |
| 1913 ... | 1.46 | 1925 ... | 0.82 | 1938 ... | 0.18 | 1951 ... | 0.03  |
| 1914 ... | 1.55 | 1926 ... | 0.84 | 1939 ... | 0.17 | 1952 ... | 0.03  |
| 1915 ... | 1.44 | 1927 ... | 0.77 | 1940 ... | 0.16 | 1953 ... | 0.01  |
| 1916 ... | 1.57 | 1928 ... | 0.71 | 1941 ... | 0.21 | 1954 ... | 0.003 |
| 1917 ... | 2.03 | 1929 ... | 0.64 | 1942 ... | 0.19 | 1955 ... | —     |
| 1918 ... | 1.90 | 1930 ... | 0.55 | 1943 ... | 0.23 | 1956 ... | —     |
| 1919 ... | 1.76 | 1931 ... | 0.45 | 1944 ... | 0.16 | 1957 ... | —     |
| 1920 ... | 1.51 | 1932 ... | 0.42 | 1945 ... | 0.15 | 1958 ... | 0.004 |
| 1921 ... | 1.43 | 1933 ... | 0.35 | 1946 ... | 0.15 | 1959 ... | 0.003 |
| 1922 ... | 1.12 | 1934 ... | 0.30 | 1947 ... | 0.09 | 1960 ... | —     |
| 1923 ... | 1.05 | 1935 ... | 0.26 | 1948 ... | 0.09 | 1961 ... | —     |
|          |      | 1936 ... | 0.24 | 1949 ... | 0.08 | 1962 ... | 0.001 |

Rates for years 1931-49 are according to the 1940 classification (5th Revision). For 1912-30 the rates need to be multiplied by the conversion ratio 0.857 for approximate comparability.  
\*For 1950-61 No. 020.2 in International List (7th Revision).

TABLE E

*Deaths from General Paralysis of the Insane,  
Tabes Dorsalis and Aneurysm of the Aorta*

| Year        | G.P.I. |         | Tabes Dorsalis |         | Aneurysm of Aorta |         |
|-------------|--------|---------|----------------|---------|-------------------|---------|
|             | Males  | Females | Males          | Females | Males             | Females |
| 1911-20 ... | 1,697  | 383     | 592            | 106     | 838               | 208     |
| 1921-30 ... | 1,204  | 277     | 631            | 127     | 860               | 249     |
| 1931-35 ... | 819    | 240     | 566            | 125     | 969               | 393     |
| 1936-39 ... | 625    | 227     | 471            | 106     | 1,017             | 531     |
| 1940-44 ... | 482    | 167     | 270            | 71      | 367               | 124     |
| 1945-49 ... | 258    | 101     | 157            | 41      | 381               | 130     |
| 1950-54 ... | 98     | 42      | 93             | 27      | 336               | 166     |
| 1955 ...    | 84     | 36      | 53             | 24      | 332               | 173     |
| 1956 ...    | 56     | 28      | 66             | 15      | 329               | 171     |
| 1957 ...    | 48     | 20      | 53             | 22      | 358               | 183     |
| 1958 ...    | 57     | 28      | 41             | 16      | 307               | 219     |
| 1959 ...    | 62     | 27      | 50             | 22      | 295               | 190     |
| 1960 ...    | 56     | 22      | 44             | 17      | 312               | 186     |
| 1961 ...    | 37     | 17      | 41             | 19      | 286               | 194     |
| 1962 ...    | 28     | 16      | 23             | 6       | 303               | 198     |

The averages for the years 1911 to 1939 are based on the 4th Revision of the International List. Figures for the years 1940 to 1961 are according to the 7th Revision.

Non-civilian deaths are excluded from 3rd September 1939 for males and from 1st June, 1941 for females to 31st December 1949.

\*For years 1911-1939:—

"Aneurysm" (code 96) of the 4th Revision List based on arbitrary rules of assignment.

For years 1940 and after:—

"Aneurysm of Aorta" (code 022) of the 7th Revision List based on assignment by the certifying medical practitioner.

## APPENDIX D

## Tables relating to Wales

## I

*Population of Wales, 1801, 1851, 1951 and 1958-62*

| Year        | Population |           |           |
|-------------|------------|-----------|-----------|
|             | Males      | Females   | Persons   |
| 1801 ... .. | 279,407    | 307,838   | 587,245   |
| 1851 ... .. | 581,789    | 581,266   | 1,163,055 |
| 1951 ... .. | 1,262,000  | 1,327,000 | 2,589,000 |
| 1958 ... .. | 1,282,000  | 1,333,000 | 2,615,000 |
| 1959 ... .. | 1,286,000  | 1,337,000 | 2,623,000 |
| 1960 ... .. | 1,291,000  | 1,338,000 | 2,629,000 |
| 1961 ... .. | 1,296,000  | 1,334,000 | 2,630,000 |
| 1962 ... .. | 1,310,000  | 1,341,000 | 2,651,000 |

1801 and 1851: Census population.

1951-1962: Estimated mid-year home population (i.e., including armed forces stationed in Wales).

## II

*Wales: Births and Stillbirths, Deaths and Deaths of Infants, 1936-1962*

| Year      |     | Births          |                       |                                                         | Deaths          |                       | Infant mortality rate per 1,000 live births | Neonatal mortality rate per 1,000 live births |
|-----------|-----|-----------------|-----------------------|---------------------------------------------------------|-----------------|-----------------------|---------------------------------------------|-----------------------------------------------|
|           |     | Live Births     |                       | Stillbirth rate per 1,000 total births (live and still) | Number annually | Rate per 1,000 living |                                             |                                               |
|           |     | Number annually | Rate per 1,000 living |                                                         |                 |                       |                                             |                                               |
| 1936-1940 | ... | 37,886          | 15.2                  | 50.4                                                    | 33,363          | 13.4                  | 61.6                                        | 33.8                                          |
| 1941-1945 | ... | 42,906          | 17.2                  | 37.1                                                    | 32,309          | 13.0                  | 56.2                                        | 29.4                                          |
| 1946-1950 | ... | 46,603          | 18.4                  | 28.8                                                    | 32,067          | 12.6                  | 42.3                                        | 23.7                                          |
| 1951-1955 | ... | 40,664          | 15.7                  | 27.1                                                    | 33,032          | 12.7                  | 32.7                                        | 20.9                                          |
| 1956      | ... | 40,915          | 15.7                  | 26.8                                                    | 32,438          | 12.4                  | 28.8                                        | 20.6                                          |
| 1957      | ... | 41,645          | 15.9                  | 25.8                                                    | 32,696          | 12.5                  | 28.4                                        | 20.0                                          |
| 1958      | ... | 42,460          | 16.2                  | 26.3                                                    | 32,642          | 12.5                  | 26.5                                        | 18.9                                          |
| 1959      | ... | 42,262          | 16.1                  | 26.3                                                    | 32,134          | 12.3                  | 26.3                                        | 19.6                                          |
| 1960      | ... | 44,147          | 16.8                  | 23.6                                                    | 32,715          | 12.4                  | 25.3                                        | 18.7                                          |
| 1961      | ... | 44,923          | 17.1                  | 22.4                                                    | 33,705          | 12.8                  | 24.0                                        | 17.5                                          |
| 1962      | ... | 45,382          | 17.1                  | 22.0                                                    | 33,781          | 12.7                  | 25.3                                        | 16.9                                          |

Note: Births prior to 1939 are numbers registered and for 1939 and later are occurrences in the period.

Birth rates for 1940-49 are based on civilian population.

Deaths include those of non-civilians registered in Wales.

Death rates are for civilians only from 1939 (for males) or 1941 (for females) until the end of 1949. For all other years they are based upon home population.

Infant mortality and neonatal mortality is based on related births prior to 1957.

## III

*Wales: Deaths from Principal Causes, 1959-1962*

| Causes of Death (Classified by 1955<br>Revision of International List) | Number of Deaths* |        |        |        |
|------------------------------------------------------------------------|-------------------|--------|--------|--------|
|                                                                        | 1959              | 1960   | 1961   | 1962   |
| Tuberculosis, respiratory ... ..                                       | 287               | 291    | 265    | 228    |
| Tuberculosis, other ... ..                                             | 36                | 25     | 25     | 24     |
| Syphilitic disease ... ..                                              | 52                | 40     | 42     | 34     |
| Diphtheria ... ..                                                      | —                 | —      | 1      | 1      |
| Whooping cough ... ..                                                  | —                 | 1      | 2      | —      |
| Meningococcal infections ... ..                                        | 15                | 3      | 3      | 13     |
| Acute poliomyelitis ... ..                                             | 3                 | 2      | 4      | 2      |
| Measles ... ..                                                         | 4                 | 1      | 9      | —      |
| Other infective, etc., diseases ... ..                                 | 49                | 68     | 59     | 79     |
| Malignant neoplasms:—                                                  |                   |        |        |        |
| Stomach ... ..                                                         | 1,069             | 1,060  | 1,049  | 1,088  |
| Lung, Bronchus ... ..                                                  | 1,002             | 1,038  | 1,098  | 1,085  |
| Breast ... ..                                                          | 447               | 521    | 440    | 529    |
| Uterus ... ..                                                          | 234               | 253    | 236    | 249    |
| Other malignant and lymphatic neoplasms...                             | 2,628             | 2,608  | 2,762  | 2,734  |
| Leukaemia, aleukaemia ... ..                                           | 142               | 141    | 145    | 149    |
| Diabetes ... ..                                                        | 184               | 263    | 250    | 247    |
| Vascular lesions of nervous system ... ..                              | 4,833             | 5,046  | 4,765  | 5,071  |
| Coronary disease, angina ... ..                                        | 5,343             | 5,741  | 5,983  | 6,386  |
| Hypertension with heart disease ... ..                                 | 784               | 797    | 820    | 758    |
| Other heart diseases ... ..                                            | 4,337             | 4,416  | 4,364  | 4,136  |
| Other circulatory disease ... ..                                       | 1,515             | 1,613  | 1,702  | 1,545  |
| Influenza ... ..                                                       | 394               | 78     | 551    | 173    |
| Pneumonia ... ..                                                       | 1,046             | 1,018  | 1,265  | 1,319  |
| Bronchitis ... ..                                                      | 1,765             | 1,646  | 1,895  | 2,025  |
| Other disease of respiratory system ... ..                             | 515               | 540    | 607    | 577    |
| Ulcer of stomach and duodenum ... ..                                   | 209               | 228    | 182    | 224    |
| Gastritis, enteritis and diarrhoea ... ..                              | 108               | 132    | 161    | 157    |
| Nephritis and nephrosis ... ..                                         | 280               | 320    | 275    | 280    |
| Hyperplasia of prostate ... ..                                         | 304               | 283    | 280    | 238    |
| Pregnancy, childbirth, abortion ... ..                                 | 18                | 25     | 16     | 19     |
| Congenital malformations ... ..                                        | 349               | 323    | 336    | 317    |
| Other defined and ill-defined diseases ... ..                          | 2,915             | 2,822  | 2,746  | 2,759  |
| Motor vehicle accidents ... ..                                         | 298               | 366    | 328    | 314    |
| All other accidents ... ..                                             | 717               | 745    | 778    | 745    |
| Suicide ... ..                                                         | 239               | 242    | 241    | 261    |
| Homicide, operations of War ... ..                                     | 13                | 19     | 20     | 15     |
| All causes ... ..                                                      | 32,134            | 32,715 | 33,705 | 33,781 |

\* Deaths include those of non-civilians.

## IV

*Wales: Deaths from Tuberculosis per annum, including those of non-civilians and standardized death rates per million (1901) population basis*

| Year     | Respiratory |         |         |                                                              | Other Forms |         |         |                                                              |
|----------|-------------|---------|---------|--------------------------------------------------------------|-------------|---------|---------|--------------------------------------------------------------|
|          | Males       | Females | Persons | Standardized death rates per million (1901 population basis) | Males       | Females | Persons | Standardized death rates per million (1901 population basis) |
| 1953 ... | 447         | 185     | 632     | 174                                                          | 36          | 52      | 88      | 36                                                           |
| 1954 ... | 431         | 181     | 612     | 167                                                          | 35          | 31      | 66      | 22                                                           |
| 1955 ... | 369         | 154     | 523     | 139                                                          | 26          | 12      | 38      | 13                                                           |
| 1956 ... | 280         | 116     | 396     | 100                                                          | 16          | 17      | 33      | 10                                                           |
| 1957 ... | 242         | 93      | 335     | 82                                                           | 15          | 18      | 33      | 11                                                           |
| 1958 ... | 227         | 77      | 304     | 71                                                           | 14          | 15      | 29      | 9                                                            |
| 1959 ... | 238         | 49      | 287     | 66                                                           | 17          | 19      | 36      | 11                                                           |
| 1960 ... | 231         | 60      | 291     | 62                                                           | 16          | 9       | 25      | 7                                                            |
| 1961 ... | 209         | 56      | 265     | 58                                                           | 12          | 13      | 25      | 8                                                            |
| 1962 ... | 180         | 48      | 228     | 48                                                           | 18          | 6       | 24      | 5                                                            |

*Note:—Deaths for 1953–1962 according to classification in use for 1962 (7th Revision).*

## V

*Wales: Deaths and death rates from Cancer (including leukaemia and aleukaemia), 1962*

| Site                                        | Number of Deaths |         |         | Rates per Million |         |         |
|---------------------------------------------|------------------|---------|---------|-------------------|---------|---------|
|                                             | Males            | Females | Persons | Males             | Females | Persons |
| Stomach ... ..                              | 626              | 462     | 1,088   | 478               | 345     | 410     |
| Lung Bronchus ... ..                        | 958              | 127     | 1,085   | 731               | 95      | 409     |
| Breast ... ..                               | 6                | 523     | 529     | 5                 | 390     | 200     |
| Uterus ... ..                               | —                | 249     | 249     | —                 | 186     | 94      |
| Other malignant and lymphatic neoplasms ... | 1,476            | 1,258   | 2,734   | 1,127             | 938     | 1,061   |
| Leukaemia and aleukaemia                    | 83               | 66      | 149     | 63                | 49      | 56      |
| Total ... ..                                | 3,149            | 2,685   | 5,834   | 2,404             | 2,002   | 2,201   |

## APPENDIX E

### Miners' Rehabilitation Service

The mining population in areas served by the Centres in England and Wales has diminished by 9,000 in the past year and by 129,000 since these Centres were taken over by the Ministry of Health in 1950. This does, of course, reduce the number of serious mining injuries of the kind for which the Centres were provided, and this is reflected in the slight increase in the admission of non-miners—an increase from 5 per cent to 10 per cent in the last five years.

The total number of admissions has risen again to 2,719, and the overall occupancy figure of 92.5 per cent is satisfactory, though Oakmere Hall, at 69 per cent, leaves something to be desired. The proportion of cases with fractures or dislocations is 44 per cent, the order of frequency being legs, spine, pelvis and arm.

The average period of *total* incapacity is slightly increased at 7.1 months. This is the most reliable way to measure the seriousness of injuries. Clinical classifications can be extremely misleading. The average duration of treatment in the Centres is 9.9 weeks.

From the social point of view the most important statistics are the resettlement figures. These show the same excellent results as in previous years, and it is a great tribute to the industry that in spite of the difficulties of a diminishing labour force there has been no diminution in the absorption and resettlement of partially disabled men. Moreover, resettlement is achieved within 4 weeks in 86.5 per cent, and only 1.6 per cent are unemployed after 6 months.

These resettlement figures maintain the extremely high standard of former years. 72.5 per cent resumed pre-accident work in the mines and 21 per cent went to permanent lighter work, making 93.5 per cent restored to the industry. This figure has never been below 90 per cent, and at its highest was 96 per cent. Resettlement outside the industry was 3.4 per cent compared with 5 per cent last year and 6.7 per cent in 1960. Patients retiring on completion of treatment and patients transferred back to hospital account for another 2.4 per cent, leaving only 0.7 per cent of cases who can be regarded as failures of resettlement.

Since the inception of the Miners' Rehabilitation Service in 1942, 38,600 injured miners have been treated in England and Wales, with successful resettlement in 99.9 per cent, and 93.7 per cent returned to the industry.

*Mining Rehabilitation Service—Statistics for 1962*

| Camp           | Capacity of Quarters |      |       | Number of Admissions |        |       | Percentage Utilization of Capacity |        |       | Percentage of Cases with Program and Discharge |        |       | Average of Treatment of Outpatients Discharged During the Year |      |      |                                               |      |      |
|----------------|----------------------|------|-------|----------------------|--------|-------|------------------------------------|--------|-------|------------------------------------------------|--------|-------|----------------------------------------------------------------|------|------|-----------------------------------------------|------|------|
|                | LPs                  | GP's | Total | Mining               | Others | Total | Mining                             | Others | Total | Mining                                         | Others | Total | Average Period of the Quarters (in weeks)                      |      |      | Average Period of Total Inpatient (in months) |      |      |
| Bray Hill Hall | 24                   | 24   | 48    | 140                  | 24     | 164   | 14.6                               | 1.7    | 16.3  | 40.6                                           | 75.4   | 46.4  | 9.3                                                            | 18.2 | 10.9 | 5.1                                           | 4.4  | 3.3  |
| Black Hall     | 95                   | —    | 95    | 212                  | 22     | 234   | 54.2                               | 8.8    | 63.0  | 42.4                                           | 54.4   | 48.3  | 14.4                                                           | 21.4 | 15.3 | 10.4                                          | 14.5 | 62.5 |
| Burford Hall   | 50                   | 12   | 62    | 127                  | 16     | 143   | 71.4                               | 12.3   | 83.4  | 23.2                                           | 23.2   | 23.7  | 8.3                                                            | 8.3  | 8.3  | 4.3                                           | 2.4  | 2.3  |
| Higham House   | 24                   | —    | 24    | 124                  | 117    | 241   | 47.4                               | 39.4   | 86.8  | 40.4                                           | 42.2   | 41.3  | 7.4                                                            | 7.7  | 7.5  | 2.7                                           | 2.1  | 2.2  |
| Orkney Hall    | 20                   | —    | 20    | 118                  | 24     | 142   | 41.2                               | 7.1    | 48.3  | 27.2                                           | 28.2   | 28.5  | 12.1                                                           | 12.3 | 12.3 | 3.2                                           | 17.2 | 2.2  |
| Talgarth       | 104                  | —    | 104   | 112                  | —      | 112   | 100.0                              | —      | 100.0 | 40.2                                           | —      | 40.2  | 4.2                                                            | —    | 4.2  | 2.2                                           | —    | 2.2  |
| The Exchange   | 40                   | —    | 40    | 122                  | 27     | 149   | 17.1                               | 3.1    | 20.2  | 42.3                                           | 18.4   | 40.3  | 8.3                                                            | 4.1  | 7.2  | 1.4                                           | 2.4  | 2.3  |
| Total          | 415                  | 36   | 451   | 2,414                | 183    | 2,597 | 51.7                               | 10.1   | 61.8  | 40.7                                           | 48.1   | 44.4  | 9.3                                                            | 20.2 | 15.3 | 7.1                                           | 8.2  | 2.2  |

| 1                       | Personnel Expenditure, 1940-41<br>in Millions of £ |                         | Employment Distribution by Release of<br>Persons & Material from Excess |        |                        |        |                           |       | Personnel Expenditure, 1940-41<br>in Millions of £ |        |                               |        | 2      |                        |        |
|-------------------------|----------------------------------------------------|-------------------------|-------------------------------------------------------------------------|--------|------------------------|--------|---------------------------|-------|----------------------------------------------------|--------|-------------------------------|--------|--------|------------------------|--------|
|                         | Costs                                              | Type of Cost            | Normal or<br>Essential Work                                             |        | Personnel<br>Left Work |        | Work in Color<br>Industry |       | Total<br>Expenditure                               |        | Expenditure<br>on<br>Training |        |        | Not yet<br>Expenditure |        |
|                         |                                                    |                         | 1                                                                       | 2      | 3                      | 4      | 5                         | 6     | 7                                                  | 8      | 9                             | 10     | 11     | 12                     | 13     |
| Army 1941-42            | Army 1941-42                                       | Army 1941-42            | 120                                                                     | 1,200  | 85                     | 1,200  | 85                        | 120   | 1,200                                              | 1,200  | 1,200                         | 1,200  | 1,200  | 1,200                  | 1,200  |
|                         | Total                                              | Total                   | 120                                                                     | 1,200  | 85                     | 1,200  | 85                        | 120   | 1,200                                              | 1,200  | 1,200                         | 1,200  | 1,200  | 1,200                  | 1,200  |
| Navy 1941-42            | Navy 1941-42                                       | Navy 1941-42            | 100                                                                     | 1,000  | 70                     | 1,000  | 70                        | 100   | 1,000                                              | 1,000  | 1,000                         | 1,000  | 1,000  | 1,000                  | 1,000  |
|                         | Total                                              | Total                   | 100                                                                     | 1,000  | 70                     | 1,000  | 70                        | 100   | 1,000                                              | 1,000  | 1,000                         | 1,000  | 1,000  | 1,000                  | 1,000  |
| Air Force 1941-42       | Air Force 1941-42                                  | Air Force 1941-42       | 150                                                                     | 1,500  | 100                    | 1,500  | 100                       | 150   | 1,500                                              | 1,500  | 1,500                         | 1,500  | 1,500  | 1,500                  | 1,500  |
|                         | Total                                              | Total                   | 150                                                                     | 1,500  | 100                    | 1,500  | 100                       | 150   | 1,500                                              | 1,500  | 1,500                         | 1,500  | 1,500  | 1,500                  | 1,500  |
| War Office 1941-42      | War Office 1941-42                                 | War Office 1941-42      | 120                                                                     | 1,200  | 85                     | 1,200  | 85                        | 120   | 1,200                                              | 1,200  | 1,200                         | 1,200  | 1,200  | 1,200                  | 1,200  |
|                         | Total                                              | Total                   | 120                                                                     | 1,200  | 85                     | 1,200  | 85                        | 120   | 1,200                                              | 1,200  | 1,200                         | 1,200  | 1,200  | 1,200                  | 1,200  |
| Home Office 1941-42     | Home Office 1941-42                                | Home Office 1941-42     | 100                                                                     | 1,000  | 70                     | 1,000  | 70                        | 100   | 1,000                                              | 1,000  | 1,000                         | 1,000  | 1,000  | 1,000                  | 1,000  |
|                         | Total                                              | Total                   | 100                                                                     | 1,000  | 70                     | 1,000  | 70                        | 100   | 1,000                                              | 1,000  | 1,000                         | 1,000  | 1,000  | 1,000                  | 1,000  |
| Colonial Office 1941-42 | Colonial Office 1941-42                            | Colonial Office 1941-42 | 80                                                                      | 800    | 50                     | 800    | 50                        | 80    | 800                                                | 800    | 800                           | 800    | 800    | 800                    | 800    |
|                         | Total                                              | Total                   | 80                                                                      | 800    | 50                     | 800    | 50                        | 80    | 800                                                | 800    | 800                           | 800    | 800    | 800                    | 800    |
| Treasury 1941-42        | Treasury 1941-42                                   | Treasury 1941-42        | 120                                                                     | 1,200  | 85                     | 1,200  | 85                        | 120   | 1,200                                              | 1,200  | 1,200                         | 1,200  | 1,200  | 1,200                  | 1,200  |
|                         | Total                                              | Total                   | 120                                                                     | 1,200  | 85                     | 1,200  | 85                        | 120   | 1,200                                              | 1,200  | 1,200                         | 1,200  | 1,200  | 1,200                  | 1,200  |
| The Admiralty 1941-42   | The Admiralty 1941-42                              | The Admiralty 1941-42   | 100                                                                     | 1,000  | 70                     | 1,000  | 70                        | 100   | 1,000                                              | 1,000  | 1,000                         | 1,000  | 1,000  | 1,000                  | 1,000  |
|                         | Total                                              | Total                   | 100                                                                     | 1,000  | 70                     | 1,000  | 70                        | 100   | 1,000                                              | 1,000  | 1,000                         | 1,000  | 1,000  | 1,000                  | 1,000  |
| Totals                  | Minors                                             | Minors                  | 1,200                                                                   | 12,000 | 800                    | 12,000 | 800                       | 1,200 | 12,000                                             | 12,000 | 12,000                        | 12,000 | 12,000 | 12,000                 | 12,000 |
|                         | Major                                              | Major                   | 100                                                                     | 1,000  | 70                     | 1,000  | 70                        | 100   | 1,000                                              | 1,000  | 1,000                         | 1,000  | 1,000  | 1,000                  | 1,000  |
|                         | Other                                              | Other                   | 100                                                                     | 1,000  | 70                     | 1,000  | 70                        | 100   | 1,000                                              | 1,000  | 1,000                         | 1,000  | 1,000  | 1,000                  | 1,000  |
|                         | Total                                              | Total                   | 1,200                                                                   | 12,000 | 800                    | 12,000 | 800                       | 1,200 | 12,000                                             | 12,000 | 12,000                        | 12,000 | 12,000 | 12,000                 | 12,000 |

*United Kingdom Membership of W.H.O. Expert Advisory Panels  
at December, 1962*

- Addiction-Producing Drugs:* Professor A. D. Macdonald, Mr. L. D. Macleod, Mr. J. R. Nicholls.
- Antibiotics:* Professor E. B. Chain (working in Italy), Professor L. P. Garrod(?).
- Biological Standardisation:* Dr. B. R. Bangham(?), Dr. D. G. Evans, Professor J. H. Gaddum, Dr. J. H. Humphrey, Dr. D. A. Long, Professor A. A. Miles, Dr. W. L. M. Perry, Dr. A. W. Stableforth.
- Brucellosis:* Sir Weldon Dalrymple-Champneys.
- Cancer:* Dr. G. M. Bonser, Professor D. C. Cappel, Dr. G. M. Edington (working in Nigeria), Professor A. Haddow, Professor J. Knowelden, Professor R. Scarff, Dr. A. C. Thackray.
- Cardiovascular Diseases:* Dr. D. G. Abrahams (working in Nigeria), Professor J. B. Duguid (working in Malaya), Dr. J. N. Morris, Professor D. D. Reid, Dr. A. G. Shaper (working in Uganda), Professor G. Wilson.
- Chronic Degenerative Diseases:* Dr. W. S. C. Copeman, Dr. R. Doll, Dr. J. H. Kellgren, Professor C. B. Perry, Dr. W. Tegner.
- Dental Health:* Professor R. D. Bradlaw, Professor A. I. Darling, Dr. R. D. Emslie, Dr. Jean R. Forrest, Dr. A. M. Horsnell (working in Australia), Dr. G. H. Leatherman, Professor G. L. Slack(?).
- Environmental Sanitation:* Dr. R. C. Hoather, Dr. W. H. H. Jebb, Mr. R. Johnson, Professor H. D. Kay, Dr. A. Key, Dr. R. J. Macwalter, Sir George McNaughton, Dr. A. Parker, Dr. B. A. Southgate, Dr. E. Windle Taylor, Sir Harold E. Whittingham, Mr. J. N. Wood.
- Food Additives:* Dr. Ella Barnes, Dr. W. T. C. Berry(?), Professor E. Boyland, Sir Charles Dodds, Professor A. C. Frazer, Dr. H. B. Stoner.
- Health Education:* Miss N. C. Daniels, Dr. G. G. Murphy (working in Uganda), Dr. R. Sutherland, Miss W. M. Warden.
- Health Laboratory Services:* Dr. W. d'A. Maycock, Dr. K. B. Rogers, Dr. R. E. O. Williams, Sir G. S. Wilson.
- Health of Seafarers:* Dr. A. Hutchison, Dr. H. E. Seiler, Dr. R. C. Wofinden.
- Health Statistics:* Sir A. Bradford Hill(?), Mr. C. A. L. Myburgh (working in the Federation of Rhodesia and Nyasaland), Professor L. S. Penrose, Dr. A. H. T. Robb-Smith, Dr. A. Smith, Dr. C. C. Spicer, Dr. Percy Stocks.
- Human Genetics:* Dr. J. A. Fraser Roberts, Dr. A. C. Stevenson.
- Insecticides:* Dr. J. M. Barnes, Dr. J. R. Busvine(?), Dr. F. P. Coyne, Dr. R. A. E. Galley, Mr. A. E. H. Higgins, Mr. K. S. Hocking(?) (working in Tanganyika), Dr. H. G. H. Kearns, Dr. J. T. Martin, Dr. E. A. Parkin, Dr. C. Potter, Mr. J. A. Reid, Mr. C. B. Symes, Dr. E. M. Thain, Dr. R. H. Wharton (working in the Federation of Malaya), Dr. V. B. Wigglesworth.
- International Pharmacopoeia and Pharmaceutical Preparations:* Mr. F. W. Adams, Professor A. H. Beckett, Dr. H. Davis, Mr. T. C. Denston(?), Dr. F. Hartley, Dr. T. D. Whittet.
- International Quarantine:* Dr. K. G. Bergin, Mr. W. H. Boucher, Mr. W. Dalgarno, Dr. M. Mackenzie, Dr. M. T. Morgan, Dr. L. H. Murray(?), Dr. P. C. Murray (working in Jamaica), Mr. C. Parry, Sir Harold Whittingham.
- Leprosy:* Dr. P. W. Brand (working in India), Dr. J. A. Kinnear Brown (working in Uganda), Dr. R. Cochrane, Dr. E. Muir, Dr. J. Ross Innes, Dr. R. Toledo (residing in Italy).
- Malaria:* Dr. R. S. Bray, Sir Gordon Covell, Dr. J. W. Field (working in the Federation of Malaya), Dr. G. Giglioli (working in British Guiana), Dr. H. P. S. Gillette (working in Trinidad), Professor G. Macdonald(?), Dr. I. A. McGregor (working in Gambia), Dr. B. J. Macgrath, Professor H. E. Shortt, Dr. T. Wilson(?).
- Maternal and Child Health:* Professor Sir Dugald Baird, Dr. V. Mary Crosse, Professor A. Moncrieff, Professor W. M. C. Nixon, Sir Harry Platt, Dr. Dorothy M. Taylor.
- Medical Research:* Professor Sir A. Bradford Hill, Sir Harold Himsworth.
- Mental Health:* Dr. J. Bowlby, Dr. G. M. Carstairs, Dr. H. Craigie, Professor G. R. Hargreaves, Dr. L. T. Hilliard, Dr. Maxwell S. Jones (working in U.S.A.), Professor Sir Aubrey Lewis, Dr. the Hon. W. S. Maclay, Dr. A. C. Raman (working in Mauritius), Dr. J. R. Rees, Dr. T. P. Rees, Professor T. F. Rodger, Dr. K. Soddy, Professor E. Stengel, Dr. G. C. Tooth, Professor W. H. Trethowan.

*Nursing:* Miss M. Bayes, Mr. J. D. C. Goddes, Miss A. A. Graham, Miss O. F. Griffith, Miss H. Nussbaum, Miss M. B. Powell, Miss K. A. Raven, Miss E. Stephenson, Miss F. N. Udeh.

*Nutrition:* Professor E. Cruickshank (working in Jamaica), Dr. H. Cullumhine, Dr. R. F. A. Dean (working in Uganda), Dr. D. B. Jelliffe<sup>(12)</sup> (working in Uganda), Dr. R. Passmore, Professor B. S. Platt, Dr. H. Sinclair, Dr. G. R. Wadsworth, Dr. J. C. Waterlow (working in Jamaica).

*Occupational Health:* Dr. D. Hunter, Professor R. E. Lane, Dr. T. A. Lloyd Davies, Dr. L. G. Norman, Miss D. Pemberton, Dr. R. F. S. Schilling, Dr. D. Stewart, Rt. Hon. Lord Taylor, Dr. R. F. Tredgold.

*Organization of Medical Care:* Dr. A. L. Banks, Dr. C. M. Fleming, Dr. J. Hunt, Dr. H. M. C. Macculay.

*Parasitic Diseases:* Dr. G. C. Ainsworth, Dr. F. I. C. Apted, Professor J. J. C. Buckley, Dr. H. Fairbairn (living in South Africa), Mr. P. Freeman, Professor P. C. C. Garnham, Dr. F. Hawking, Dr. R. B. Heisch (working in Kenya), Dr. C. Hoare, Professor R. Kirk (working in Hong Kong), Dr. D. J. Lewis, Dr. W. H. R. Lumsden<sup>(13)</sup> (working in Uganda), Sir Philip Manson-Bahr, Mr. P. F. Mattingly, Dr. A. R. McKelvie (working in Kenya), Dr. K. R. S. Morris (working in Uganda), Dr. T. A. M. Nash, The Rev. J. W. R. Sarkies, Professor J. M. Watson, Dr. B. Writz, Dr. K. C. Willett<sup>(14)</sup> (working in Nigeria), Dr. J. Williamson.

*Plague:* Mr. S. A. Barnett, Professor P. C. C. Garnham, Mr. G. H. E. Hopkins.

*Professional and Technical Education of Medical and Auxiliary Personnel:* Sir David Campbell, Rt. Hon. Lord Cohen of Birkenhead, Dr. W. J. Hamilton, Sir Harold Himsworth, Professor J. Mackintosh (working in U.S.A.), Dr. R. M. Morris (working in Federation of Rhodesia and Nyasaland), Professor G. Payling Wright, Sir Groeue W. Pickering, Dr. Margaret Read, Professor W. S. Walton.

*Public Health Administration:* Professor C. F. Brockington, Dr. C. O. B. Brooke, Sir John A. Charles, Sir Kenneth Cowan, Sir George E. Godber, Dr. F. F. Main, Dr. R. M. Morris (working in the Federation of Rhodesia and Nyasaland).

*Radiation:* Rt. Hon. Lord Adrian, Mr. W. Binks, Dr. I. S. Eve, Dr. L. H. Gray, Mr. A. W. Kenny, Professor L. F. Lamerton, Dr. J. F. Loutit, Professor B. Macmahon (working in U.S.A.), Dr. W. G. Marley, Professor W. V. Mayneord, Dr. A. S. McLean<sup>(15)</sup>, Dr. E. C. Pochin, Dr. Katharine Williams, Dr. F. J. Woodman.

*Rehabilitation:* Dr. F. S. Cooksey, Dr. R. Langdale-Kelham.

*Trachoma:* Mr. A. J. Boase (working in Jordan), Sir Stewart Duke-Elder, Professor Ida Mann (working in Australia), Professor A. Sorsby, Dr. V. Tahone (working in Malta).

*Tuberculosis:* Dr. P. M. d'Arcy Hart, Dr. A. L. Cochrane, Dr. I. M. MacGregor, Dr. A. S. Moodie (working in Hong Kong).

*Veneral Infections and Treponematoses:* Mr. A. J. King, Dr. G. L. M. McElligott (living in Ireland), Dr. A. E. Wilkinson<sup>(16)</sup>, Dr. R. R. Willcox.

*Virus Diseases:* Sir Christopher Andrews, Professor W. I. B. Beveridge, Dr. L. H. Collier, Professor A. W. Downie, Dr. F. Fulton, Dr. C. E. Gordon Smith, Dr. L. Grant (working in Jamaica), Dr. A. J. Haddow (working in Uganda), Professor J. H. Hale, Dr. L. Hoyle, Dr. A. Isaacs, Dr. Lee Lian Hin (working in Singapore), Dr. Lim Kok Ann (working in Singapore), Dr. F. O. MacCallum, Dr. F. N. MacNamara (working in New Zealand), Dr. A. D. Macrae, Professor A. M. M. Payne (working in U.S.A.), Professor Wilson Smith, Dr. M. G. P. Stoker, Professor C. H. Stuart-Harris, Dr. G. L. Timms (working in Kenya).

*Zoonoses:* Dr. H. Thornton (working in the Federation of Rhodesia and Nyasaland).

(1) Attended Expert Committee on the Public Health Aspects of the use of Antibiotics in Food and Feedstuffs.

(2) Attended Expert Committee on Biological Standardisation.

(3) Attended Expert Committee on Dental Health (Dental Education).

(4) Attended Expert Committee on the Public Health Aspects of the use of Antibiotics in Food and Feedstuffs.

(5) Attended Advisory Committee on Medical Research.

(6) Attended Expert Committee on Insecticides.

(7) Attended Expert Committee on Trypanosomiasis.

(8) Attended Expert Committee on Specifications for Pharmaceutical Preparations and Sub-Committee on Non-proprietary Names.

(9) Attended Committee on International Quarantine.

(10) Attended Expert Committee on Malaria.

(11) Attended Expert Committee on Malaria.

(12) Attended Expert Committee on Medical Assessment of Nutritional Status.

(13) Attended Expert Committee on Trypanosomiasis.

(14) Attended Expert Committee on Trypanosomiasis.

(15) Attended Expert Committee on Radiation.

(16) Attended Expert Committee on Gonococcal Infections.

## APPENDIX G

### Medical Department of Ministry of Health

(July, 1963)

#### *Chief Medical Officer*

Sir George Godber, K.C.B., D.M., F.R.C.P.

#### *Deputy Chief Medical Officers*

D. Thomson, C.B., M.D.

Albertine L. Winner, O.B.E., M.D., F.R.C.P.

#### MED. 1. LOCAL AUTHORITY SERVICES

*Special Principal Medical Officer*—I. G. Davies, M.D., F.R.C.P.

#### MED. 1A. ENVIRONMENTAL HEALTH

*Principal Medical Officer*—J. M. Ross, M.B.

*Senior Medical Officer*—A. E. Martin, M.D.

*Medical Officers*—J. F. E. Bloss, M.R.C.S., H. M. Elliott, M.B.

*Food Hygiene Advisory Officer*—Mr. T. Morley Parry.

#### MED. 1B. EPIDEMIOLOGY

*Principal Medical Officer*—A. T. Roden, M.D.

*Senior Medical Officer*—D. H. D. Burbridge, O.B.E., M.R.C.S.

*Medical Officers*—H. M. Archibald, M.B.E., M.B., E. L. Durnet, M.D.

#### MED. 1C (i). MATERNAL AND CHILD WELFARE

*Senior Medical Officer*—Roma N. Chamberlain, M.B.

*Medical Officers*—Mary G. Gorrie, M.D., Margaret Manson, M.B., Marjorie Kuck, M.B., M.R.C.O.G.

#### MED. 1C (ii)

*Senior Medical Officer*—C. A. Boucher, O.B.E., D.M.

*Medical Officer*—C. G. M. Nicol, M.B.

#### MED. 2. SPECIAL SUBJECTS STUDIES

##### MED. 2A. THERAPEUTIC SUBSTANCES ACT 1956—

##### NUTRITION (a), TOXICOLOGY (b) AND PHARMACOLOGY (c)

*Principal Medical Officer*—E. T. Conybeare, O.B.E., M.D., F.R.C.P.

*Senior Medical Officers*—W. T. C. Berry, M.D. (a), R. Goulding, M.D., B.Sc. (b), J. A. Holgate, M.B. (c).

*Temporary Medical Officer*—Phyllis W. Fleming, M.D. (a).

#### MED. 2B. SPECIAL SUBJECTS

*Principal Medical Officer*—R. H. L. Cohen, M.R.C.S.

*Senior Medical Officers*—M. A. Heasman, M.R.C.S. (Medical Statistics), J. L. Hunt, M.B., J. M. G. Wilson, M.B., M.R.C.P., F. Riley, M.D., M.R.C.P.

*Medical Officer*—Mary Sheridan, M.A., M.D.

#### MED. 3. INTERNATIONAL HEALTH

*Principal Medical Officer*—L. H. Murray, O.B.E., M.D.

*Senior Medical Officer*—C. Seeley, M.D.

*Medical Officers*—E. E. Henderson, M.D. (Inspector of Anatomy), A. McGregor, M.B.

MED. 4. HOSPITAL SERVICES AND REGIONAL LIAISON

MED. 4A. GENERAL HOSPITAL QUESTIONS

*Principal Medical Officer*—H. Yellowlees, M.A., B.M., B.Ch.

*Senior Medical Officers*—R. H. Barrett, M.R.C.S., L.R.C.P., D.T.M.H., D.P.H.; R. N. Chamberlain, M.B., A. J. Eley, M.A., M.B., B.S., D.M.R.D., T. J. B. Geffen, M.D., M.R.C.P., W. Lees, M.B., Ch.B., M.R.C.O.G., J. L. McLetchie, C.M.G., O.B.E., M.B., Ch.B., D.P.H., E. C. Murphy, T.D., M.R.C.S., L.R.C.P., F. Riley, M.D., M.R.C.P., J. G. Thomson, M.B., Ch.B., D.P.H., J. M. G. Wilson, M.B., M.R.C.P., Catherine N. Dennis, F.R.C.S., D.P.H.

*Medical Officers*—A. Cruickshank, O.B.E., M.D., Rear-Admiral R. W. Mussen, C.B., C.B.E., M.D., F.R.C.P., K. W. Lovel, B.M., M.R.C.P.

MED. 4B. REGIONAL LIAISON (NORTH)

*Principal Medical Officer*—D. S. Todd-White, M.R.C.S.

*Senior Medical Officers*—W. Lees, M.B., Ch.B., M.R.C.O.G., E. C. Murphy, T.D., M.R.C.S., L.R.C.P., C. Muir, M.B., M.R.C.P.(Ed.), J. N. Twohig, M.B.

*Medical Officer*—K. W. Lovel, B.M., M.R.C.P.

MED. 4C. REGIONAL LIAISON (SOUTH)

*Principal Medical Officer*—W. H. P. Minto, M.D.

*Senior Medical Officers*—R. H. Barrett, M.R.C.S., L.R.C.P., Catherine N. Dennis, F.R.C.S., D.P.H., T. J. B. Geffen, M.D., M.R.C.P., J. L. McLetchie, C.M.G., O.B.E., M.B., Ch.B., D.P.H., F. Riley, M.D., M.R.C.P., J. G. Thomson, M.B., Ch.B., D.P.H.

*Medical Officer*—Elizabeth C. Shore, M.R.C.S., L.R.C.P.

MED. 4D. HOSPITAL PLANNING

*Principal Medical Officer*—R. M. Shaw, M.B.

*Senior Medical Officers*—Catherine N. Dennis, F.R.C.S., D.P.H., A. B. Harrington, M.D., C. Muir, M.B., M.R.C.P.(Ed.), T. J. B. Geffen, M.D., M.R.C.P., J. N. Twohig, M.B.

*Medical Officers*—Margaret Manson, M.B., D. Dooley, M.R.C.S.

MED. 5. MENTAL HEALTH

*Special Principal Medical Officer*—R. K. Freudenberg, M.D., D.P.M.

*Principal Medical Officer*—G. C. Tooth, M.D., D.P.M.

*Senior Medical Officers*—R. Phillipson, O.B.E., L.R.C.P., D.P.M., R. Wilkins, M.R.C.S., L.R.C.P., D.P.M.

MED. 6. GENERAL PRACTITIONER AND REGIONAL MEDICAL SERVICES

*Special Principal Medical Officer*—C. E. Gallagher, O.B.E., M.R.C.S.

*Principal Medical Officer*—K. A. Boughton-Thomas, M.B.

*Senior Medical Officers*—T. E. A. Carr, M.B., J. E. Struthers, M.B., G. W. Whittall, M.B. (with special duties on prescribing).

North Eastern Division

(Divisional Office: 44-68, The Headrow, Leeds, 1.)

*Senior Medical Officer*—R. W. Bone, M.B.

*Medical Officers*—J. Adam, O.B.E., M.B., J. Barr, M.B., C. M. Boucher, M.B., D. W. E. Burridge, T.D., M.B., H. J. Gibson, M.D., B.L., D.P.H., C. E. B. Lynch, M.D., A. Markson, M.D., E. J. S. Evans, M.A., M.B., B.Chir., M.R.C.S., L.R.C.P., A. G. Jackson, M.B., Ch.B.

North Western Division

(Divisional Office: 30, Dickinson Street, Manchester, 1.)

*Senior Medical Officer*—W. Meikle, M.B.

*Medical Officers*—A. T. Ashcroft, M.B., G. Cornah, M.B., Ch.B., T. S. Hanlin, M.B., P. N. Holmes, M.B., Ch.B., M.R.C.S., L.R.C.P., J. MacKellar, M.A., M.B., B.Chir., M.R.C.S., L.R.C.P., A. B. Stewart, M.B., B.S., L.R.C.P., L.R.C.S., L.R.F.P.S., C. J. Livingstone, M.B., Ch.B., S. Campbell, M.B., Ch.B.

### East Midlands Division

(Divisional Office: Government Buildings, Block 2, Chalfont Drive, Western Boulevard, Nottingham.)

*Senior Medical Officer*—E. D. Robb, M.B.

*Medical Officers*—W. D. Anderson, M.B., D. B. Robb, M.B., G. I. G. Findlay, M.B., Ch.B., H. J. Lee, M.B., Ch.B., J. R. McBoyle, M.B., Ch.B.

### Western Division

(Divisional Office: Five Ways House (West Entrance), Islington Row, Birmingham, 15.)

*Senior Medical Officer*—A. W. Lilley, M.R.C.S.

*Medical Officers*—G. Bridge, M.D., A. T. L. Kingdon, M.D., M.R.C.P., A. F. MacBean, M.B., M. A. Nicholson, M.B., M. Hutchinson, M.B., Ch.B., H. A. Tuck, M.B., B.S., R. C. Hill.

### Eastern Division

(Divisional Office: Queen Anne's Chambers, 28, Broadway, Westminster, S.W.1.)

*Senior Medical Officer*—I. E. Phelps, M.R.C.S.

*Medical Officers*—A. Brebner, M.B., J. A. Whyte, M.B., S. Ruttle, M.D., B.A.O., M.R.C.P., D.C.H., J. C. H. Bird, M.B., Ch.B., D. Obst., R.C.O.G., J. C. B. Bone, M.B., B. C. Welshman, M.A., M.B., B.Chir., C. R. Morison, M.D.

### Southern Division

(Divisional Office: Queen Anne's Chambers, 28, Broadway, Westminster, S.W.1.)

*Senior Medical Officer*—E. Mence, M.B.

*Medical Officers*—P. B. Hanbury, M.R.C.S., L.R.C.P., A. W. M. Rooke, M.B., B.S., M.R.C.S., L.R.C.P., W. Wilson, M.B., B.Ch., M.R.C.S., L.R.C.P., J. M. Canning, M.B., B.Ch., B.A.O., G. R. M. Sichel, M.R.C.S., L.R.C.P., E. G. L. Mark, B.Sc., M.D., M.R.C.P.

### MED. 7. ARTIFICIAL LIMBS AND APPLIANCES

*Principal Medical Officer*—D. W. Jolly, O.B.E., M.B., Ch.B.

*Senior Medical Officers*—P. Seelig, M.D., D. S. McKenzie, M.B., Ch.B., i/c Research.

*Medical Officers*—R. G. Redhead, M.B., B.S. (Research), R. G. Buxton, L.R.C.S., L.R.C.P. (Blackpool).

|                     |     |                                                                                                                                                                                                                                                                                                      |
|---------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Newcastle ...       | ... | P. A. Maughan, M.B., B.S., C. E. Halliday, M.B., Ch.B.                                                                                                                                                                                                                                               |
| Leeds ...           | ... | G. S. Thompson, M.B., F.R.C.S.(Ed.) (S.M.O.), D. S. Toole, B.A., M.B., B.Ch., T. Gray Williams, M.R.C.S., L.R.C.P.*                                                                                                                                                                                  |
| Nottingham ...      | ... | R. B. Bell, M.R.C.S., L.R.C.P., R. H. Purnell, M.B., F.R.C.S. (Ed.).                                                                                                                                                                                                                                 |
| Cambridge ...       | ... | E. A. Smyth, O.B.E., M.Ch.Orth., F.R.C.S.I.                                                                                                                                                                                                                                                          |
| London ...          | ... | G. L. Alcock, M.A., M.B., B.Ch., M.R.C.S.*, J. A. K. Fitzgerald, M.B., B.Ch., D.T.M.                                                                                                                                                                                                                 |
| Rochampton ...      | ... | Col. E. E. S. Wheatley, C.B.E., D.F.C., T.D., M.R.C.S., L.R.C.P. (S.M.O.), R. D. L. Davies, M.B., B.S., M.R.C.S., M. Vitali, Med.Dip.(Warsaw), G. R. Parry, M.B., F.R.C.S., E. E. Harris, M.A., M.R.C.S., L.R.C.P., I. Fletcher, M.R.C.S., L.R.C.P., W. C. Lawrence, M.B., F.R.C.S.(Ed.), M.Ch.Orth. |
| Tunbridge Wells ... | ... | E. D. T. Lewis, M.B., Ch.B.                                                                                                                                                                                                                                                                          |
| Reading ...         | ... | D. L. Harbinson, O.B.E., M.B., B.Ch., D.P.H.                                                                                                                                                                                                                                                         |
| Bristol ...         | ... | J. H. T. Harrington, B.A., M.R.C.S., L.R.C.P. (S.M.O.).                                                                                                                                                                                                                                              |
| Cardiff ...         | ... | See Welsh Board of Health.                                                                                                                                                                                                                                                                           |
| Birmingham ...      | ... | R. G. Bryce, M.B., Ch.B., D.P.H., R. Hudson Evans, M.R.C.S., L.R.C.P.                                                                                                                                                                                                                                |
| Manchester ...      | ... | P. F. Early, M.B., F.R.C.S. (S.M.O.), H. J. B. Day, M.R.C.S., L.R.C.P., C. C. D. Martin, M.Ch.Belf., M.B., B.Ch., B.A.O., F.R.C.S.(I).                                                                                                                                                               |
| Liverpool ...       | ... | J. C. Cooper Brass, M.R.C.S., L.R.C.P., F.R.C.S.(Ed.), V. Roman, M.D., F.R.C.S.(Ed.).                                                                                                                                                                                                                |

\* Unestablished.

|                |     |                                                         |
|----------------|-----|---------------------------------------------------------|
| Sheffield ...  | ... | Brig. C. M. Marsden, C.B.E., M.B., B.S., F.R.C.S.(Ed.). |
| Exeter ...     | ... | J. H. Ramage, M.B., Ch.B.                               |
| Portsmouth ... | ... | Brig. A. B. Dempsey, O.B.E., F.R.C.S.                   |
| Dublin ...     | ... | L. P. McCullagh, M.B., B.Ch.                            |

*Consultant Advisers*—Dr. G. S. W. Organe (Anaesthetics), Professor F. G. Young (Biochemistry), Dr. W. d'A Maycock, M.C.V.O., M.B.E. (Blood Transfusion), Dr. Graham Hayward (Cardiology), Dr. J. C. Scadding and Dr. V. H. Springett (Chest Diseases), Sir Clement Price Thomas, K.C.V.O. (Chest Surgery), Mr. T. R. Ward, C.B.E. (Dental Oral), Professor K. P. Liddelov (Dental Prosthetics), Professor R. B. Bradlaw, C.B.E. (Dental Surgery), Mr. R. Renwick Vickers (Dermatology), Dr. R. R. Bomford and Professor Max Rosenheim, C.B.E. (General Medicine), Dr. R. G. Cochrane (Leprosy), Sir Gordon Covell, C.I.E. (Malaria), Dr. P. J. Kerley, C.V.O., C.B.E. (Mass Radiography), Lord Brain (Neurology), Mr. D. W. C. Northfield (Neurosurgery), Mr. Arnold L. Walker, C.B.E. and Mr. A. J. Wrigley (Obstetrics, Gynaecology and Maternity Services), Sir Stewart Duke-Elder, G.C.V.O. (Ophthalmology), Professor Sir Harry Platt, Bt. (Orthopaedic Surgery), Mr. T. E. Cawthorne (Otolaryngology), Sir Wilfrid H. P. Sheldon, K.C.V.O. (Paediatrics), Professor R. W. Scarff, C.B.E. (Pathology), Dr. F. S. Cooksey, O.B.E. (Physical Medicine), Professor J. E. Roberts (Physics), Professor J. D. N. Hill, Dr. A. B. Munro, Dr. D. H. H. Thomas and Dr. W. Warren (Psychiatry), Dr. S. Cochrane Shanks, C.B.E. (Radiology), Sir Brian Windeyer (Radiotherapy), Mr. E. A. Nicoll, C.B.E. (Rehabilitation of Injured Miners), Mr. H. C. Edwards, C.B.E. and Sir James Paterson Ross, K.C.V.O. (Surgery), Mr. Amhrose King (Venereal Diseases).

#### DENTAL HEALTH SERVICE (attached to Headquarters)

*Chief Dental Officer*—Surgeon Rear Admiral W. Holgate, C.B., O.B.E.

*Deputy Chief Dental Officer*—Lieut.-Colonel F. S. Whiter, O.B.E., F.D.S.

*Senior Dental Officers*—R. A. Campbell, E.D., B.D.Sc., H. A. Dixey, L.D.S., Major L. G. Hitching, T.D., L.D.S., Eleanor M. Knowles, O.B.E., F.D.S., A. G. Smith, L.D.S., G. A. Rowse, L.D.S.

*Dental Officers*—Lieut.-Colonel J. A. O'Connor, M.B.E., L.D.S., Jean Oswald, L.D.S., G. B. Roberts, L.L.B., L.D.S.

#### REGIONAL DENTAL OFFICERS

*Regions*—1. P. D. M. Rowland, L.D.S., 2. I. H. Jones, L.D.S., G. V. L. Williams, T.D., L.D.S., 3. C. E. Colman, L.D.S., 4. R. D. Buchan, L.D.S., 5, 6, 7 and 8. E. S. Cross, F.D.S., B.Ch.D., I. C. S. Fraser, L.D.S., R. Middleton, L.D.S., W. N. McL. Niven, L.D.S., A. Ferrari, B.D.S., L.R.C.P., M.R.C.S., M. A. Freeman, M.C., L.D.S., A. R. Gillies, L.D.S., Lieut.-Colonel N. I. MacMillan, L.D.S., A. Macpherson, L.D.S., Lieut.-Colonel R. W. Mather, B.Dent.Sc., R. F. Ferguson, L.D.S., N.D.D., H. M. Hughes, B.D.S., L.D.S., J. C. Williams, L.D.S., R. B. Whalley, L.D.S., 9. P. A. W. Crow, V.R.D., L.D.S., 10. A. W. Holman, L.D.S., V. Howarth, L.D.S., 11. (see under Welsh Board of Health), 12. E. E. Jackson, L.D.S., A. J. Vaughton, L.D.S., 13. J. H. Whittle, L.D.S., F. D. R. Geldard, L.D.S., 14. D. S. Pritchard, L.R.C.P. & S., L.D.S.

#### PHARMACEUTICAL SERVICES

*Chief Pharmacist*—H. Davis, C.B.E., Ph.D., F.P.S., F.R.I.C.

*Senior Technical Officer (Pharmacist)*—R. Higson, F.P.S.

*Technical Officers I (Pharmacist)*—S. F. Hall, F.P.S., Miss D. M. Hine, M.P.S., Miss C. E. Mozley-Stark, F.P.S., W. J. W. Price, F.P.S., S. Williams, F.P.S.

#### NURSING AND MIDWIFERY SERVICES

*Chief Nursing Officer*—Miss K. A. Raven.

*Deputy Chief Nursing Officers*—Miss E. Jackson, O.B.E., Miss D. M. White.

*Hospital Nursing Officers*—Miss C. Biddulph, Mrs. J. Heyward (P.T.), Miss M. le Q. Mitchell, Miss P. I. M. Robson, Miss H. M. Simpson, Miss E. West.

*Mental Nursing Officers*—F. J. Ely, Miss O. F. Griffith.

*Public Health Nursing Officers*—Miss M. M. Bathgate, Miss M. H. Cook, Miss K. Drage, Miss A. E. Girling, Miss F. L. Gray, Miss F. A. Heaney, Miss R. E. Maguire, Miss M. W. Slight, Miss E. M. Trehearn, Miss W. Wehster.

WELFARE DIVISION

*Chief Welfare Officer*—Miss G. M. Aves, C.B.E.

*Deputy Chief Welfare Officers*—Miss E. L. Hope Murray, Mrs. D. Ottley.

*Welfare Officers*—Miss W. L. Adams, M.B.E., Mr. J. Castelow, Mrs. W. M. Curzon, Miss K. E. G. Davidge, Miss M. G. M. Gordon, Miss H. Wheatcroft, M.B.E.

*Regional Welfare Officers*—Mr. J. K. Argles, Miss H. Brown, Miss K. Buchanan, Miss F. E. Handasyde, Miss A. D. Kelly, Miss J. M. Mason, Miss J. R. Mijouain, Miss M. E. Openshaw, Miss M. J. Roxburgh, O.B.E., Mr. D. Sharp, Miss M. B. Wann, Miss Z. E. Williams.

WELSH BOARD OF HEALTH

*Special Principal Medical Officer*—A. R. Culley, C.B.E., M.D., Q.H.P.

*Senior Medical Officer*—R. T. Bevan, M.D.

*Medical Officers*—G. Roberts, M.D., Mary Jenkins, M.B., T. D. L. Thomas, M.B., Ch.B.

*Senior Medical Officer (Regional Medical Services)*—T. J. M. Gregg, O.B.E., M.B., J.P.

*Medical Officers (Regional Medical Services)*—G. M. Evans, M.R.C.S., Col. H. A. Mullen, T.D., M.B., Ch.B., A. J. R. Hudson, M.A., M.R.C.S., L.R.C.P., J. O. Williams, M.R.C.S., L.R.C.P., E. A. Wilson, M.B., Ch.B.

*Medical Officers (Artificial Limbs and Appliances)*—G. A. Lloyd Jones, M.B., A. A. Gregory Dean, M.D.

*Dental Officers*—G. E. Morgan, F.D.S., G. Morris, L.D.S., T. W. Beer, L.D.S.

*Welfare Officer*—Miss E. Lewis.

---

*Retired or Resigned*—Mr. R. D. Bell, Dr. P. F. Bishop, Dr. J. D. Black, Dr. W. H. Bradley, Miss P. M. Bucknell, Miss M. C. Campbell, Dr. M. H. Cosbie, Dr. A. W. Davidson, Lt.-Gen. Sir W. A. Drummond, K.B.E., C.B., Dr. R. E. Ford, C.B.E., Miss J. Forrest, O.B.E., Miss C. M. Gavin, M.B.E., Dr. N. M. Goodman, C.B., Sir Archibald Gray, K.C.V.O., C.B.E., Professor F. R. G. Heaf, C.M.G., Dr. R. E. Jerwood, Dr. P. W. Jack, Dr. J. B. Kirk, C.M.G., Dr. J. F. Lucey, Dr. W. S. Macdonald, M.C., Dr. A. MacLaine, Miss I. L. Morrison, Mrs. G. Milne-Redhead, Dr. E. M. Ring, Dr. T. Ritchie, C.B.E., Miss B. H. Roberts, Dr. J. D. Robertson, Dr. R. J. Rosie, C.B.E., Dr. I. Smith, Dr. D. M. Taylor, C.B.E., Mr. H. Walker. Dr. J. O. F. Davies returned to Oxford Regional Hospital Board. Dr. G. M. Fleming transferred to Home Office.

Annual Report of the Chief Medical Officer  
of the Ministry of Health, 1962

ON THE STATE OF THE  
PUBLIC HEALTH

**CORRECTIONS**

- DELETE *the last sentence of the first paragraph on Soft Ice Cream on page 111*
- INSERT *Eleven types of instant freezers for the sale of soft texture ice cream are now in use—three British, four Italian, two American, one Swiss and one Swedish.*

APPENDIX B

*Tables relating to tuberculosis: England and Wales*

TABLE XVIII (Page 225)

- DELETE *figures for the formal notification of tuberculosis in 1962*
- INSERT *corrected figures thus:*  
*12,966 (males) 7,553 (females) 20,519 (persons)*

Ministry of Health,  
November, 1963

LONDON : HER MAJESTY'S STATIONERY OFFICE

81725



Fig. 2. Electronic recording room, Hammersmith Hospital.



Fig. 4. Bed in passive therapy unit, Guy's Hospital, London.

(This number of copies and content is not subject to review)

[illegible]